

Technical Report for

Aquaterra Technologies, Inc.

Sun-Marcus Hook Refinery, Philadelphia, PA

AOI-5

Accutest Job Number: JB37361

Sampling Date: 05/17/13

Report to:

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Total number of pages in report: 274



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.



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Laboratory Director

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Certifications: NJ(12129), NY(10983), CA, CT, DE, FL, IL, IN, KS, KY, LA, MA, MD, MI, MT, NC, OH VAP (CL0056), PA, RI, SC, TN, VA, WV

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Test results relate only to samples analyzed.

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Sample Summary

Aquaterra Technologies, Inc.

Job No: JB37361

Sun-Marcus Hook Refinery, Philadelphia, PA

Project No: AOI-5

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
JB37361-1	05/17/13	09:00 LM	05/17/13	SO	Soil	AOI5_MW-457_0-1_051713
JB37361-2	05/17/13	09:30 LM	05/17/13	SO	Soil	AOI5_MW-457_2-3_051713
JB37361-3	05/17/13	09:00 LM	05/17/13	SO	Soil	AOI5_MW-454_0-2_51713
JB37361-4	05/17/13	14:30 LM	05/17/13	SO	Soil	AOI5_MW-454_8-10_051713

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Aquaterra Technologies, Inc.

Job No JB37361

Site: Sun-Marcus Hook Refinery, Philadelphia, PA

Report Date 6/18/2013 9:55:44 AM

On 05/17/2013, 4 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at Accutest Laboratories at a temperature of 5.2 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JB37361 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix: SO

Batch ID: VE8944

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB37249-1MS, JB37249-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- JB37361-2: Dilution required due to matrix interference.
- JB37361-4 for Toluene-D8: Outside control limits due to matrix interference. Confirmed by reanalysis.

Matrix: SO

Batch ID: VE8945

- The data for SW846 8260B meets quality control requirements.
- JB37361-4: Confirmation run for surrogate recoveries.

Matrix: SO

Batch ID: VI7452

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB37477-1MS, JB37477-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GCMS By Method SW846 8270C

Matrix: SO

Batch ID: M:OP33425

- The data for SW846 8270C meets quality control requirements.
- JB37361-1: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB37361-2: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB37361-3: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB37361-4: Analysis performed at Accutest Laboratories, Marlborough, MA.

Volatiles by GC By Method SW846 8011

Matrix: SO

Batch ID: M:OP33407

- The data for SW846 8011 meets quality control requirements.
- JB37361-4: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB37361-1: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB37361-3: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB37361-2: Analysis performed at Accutest Laboratories, Marlborough, MA.

Metals By Method SW846 6010C

Matrix: SO	Batch ID: M:MP21087
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- The data for SW846 6010C meets quality control requirements.
- JB37361-1 for Lead: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB37361-2 for Lead: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB37361-3 for Lead: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB37361-4 for Lead: Analysis performed at Accutest Laboratories, Marlborough, MA.

Wet Chemistry By Method SM21 2540 B MOD.

Matrix: SO	Batch ID: M:GN43038
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- The data for SM21 2540 B MOD. meets quality control requirements.
- JB37361-2 for Solids, Percent: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB37361-3 for Solids, Percent: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB37361-1 for Solids, Percent: Analysis performed at Accutest Laboratories, Marlborough, MA.
- JB37361-4 for Solids, Percent: Analysis performed at Accutest Laboratories, Marlborough, MA.

Accutest certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting Accutest's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

Accutest Laboratories is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by Accutest Laboratories indicated via signature on the report cover



SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: Accutest New Jersey

Job No JB37361

Site: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Report Date 6/17/2013 6:04:32 PM

4 Sample(s) were collected on 05/17/2013 and were received at Accutest of NJ on 05/17/2013, at Accutest of NE on 05/30/2013 properly preserved, at 2.1 Deg. C and intact. These Samples received an Accutest job number of JB37361. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Extractables by GCMS By Method SW846 8270C

Matrix SO **Batch ID:** OP33425

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- Sample(s) MC21295-1MS, MC21295-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- Matrix Spike Duplicate Recovery(s) for Pyrene are outside control limits. Outside control limits due to possible matrix interference. Refer to Blank Spike.
- RPD(s) for MSD for Benzo(a)anthracene, Chrysene, Phenanthrene, Pyrene are outside control limits for sample OP33425-MSD. High RPD due to possible matrix interference and/or sample non-homogeneity.
- OP33425-MSD has internal standard outside control limits. Outside control limits due to possible matrix interference.
- Continuing calibration check standard MSR1132-CC1128 has 2-Nitrophenol, Pentachlorophenol, n-Nitrosodiphenylamine, 2,4,6-Trichlorophenol (CCC) exceed 20% Difference. Target analytes are within 20% Difference.

Volatiles by GC By Method SW846 8011

Matrix SO **Batch ID:** OP33407

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB37361-1MS, JB37361-1MSD were used as the QC samples indicated.

Metals By Method SW846 6010C

Matrix SO **Batch ID:** MP21087

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) MC21207-1MS, MC21207-1MSD, MC21207-1SDL were used as the QC samples for metals.
- MP21087-SD1 for Lead: Serial dilution indicates possible matrix interference.

Wet Chemistry By Method SM21 2540 B MOD.

Matrix SO **Batch ID:** GN43038

- Sample(s) MC21251-1DUP were used as the QC samples for Solids, Percent.

The Accutest Laboratories of New England certifies that all analysis were performed within method specification. It is further recommended that this report to be used in its entirety. The Accutest Laboratories of NE, Laboratory Director or assignee as verified by the signature on the cover page has authorized the release of this report (JB37361).

Summary of Hits

Job Number: JB37361
Account: Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA
Collected: 05/17/13



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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JB37361-1 AOI5_MW-457_0-1_051713

Benzo(a)anthracene ^a	0.0539 J	0.11	0.041	mg/kg	SW846 8270C
Benzo(a)pyrene ^a	0.0527 J	0.11	0.025	mg/kg	SW846 8270C
Benzo(g,h,i)perylene ^a	0.160	0.11	0.048	mg/kg	SW846 8270C
Chrysene ^a	0.0813 J	0.11	0.043	mg/kg	SW846 8270C
Naphthalene ^a	0.133	0.11	0.041	mg/kg	SW846 8270C
Phenanthrene ^a	0.198	0.11	0.032	mg/kg	SW846 8270C
Pyrene ^a	0.202	0.11	0.032	mg/kg	SW846 8270C
Lead ^a	103	0.83	0.14	mg/kg	SW846 6010C

JB37361-2 AOI5_MW-457_2-3_051713

Isopropylbenzene ^b	0.219 J	0.52	0.0078	mg/kg	SW846 8260B
Anthracene ^a	0.0578 J	0.12	0.041	mg/kg	SW846 8270C
Benzo(a)anthracene ^a	0.0698 J	0.12	0.046	mg/kg	SW846 8270C
Benzo(a)pyrene ^a	0.0385 J	0.12	0.028	mg/kg	SW846 8270C
Chrysene ^a	0.124	0.12	0.048	mg/kg	SW846 8270C
Phenanthrene ^a	0.410	0.12	0.036	mg/kg	SW846 8270C
Pyrene ^a	0.126	0.12	0.036	mg/kg	SW846 8270C
Lead ^a	8.3	0.91	0.15	mg/kg	SW846 6010C

JB37361-3 AOI5_MW-454_0-2_51713

Anthracene ^a	0.169	0.11	0.038	mg/kg	SW846 8270C
Benzo(a)anthracene ^a	0.226	0.11	0.042	mg/kg	SW846 8270C
Benzo(a)pyrene ^a	0.183	0.11	0.026	mg/kg	SW846 8270C
Benzo(b)fluoranthene ^a	0.128	0.11	0.026	mg/kg	SW846 8270C
Benzo(g,h,i)perylene ^a	0.309	0.11	0.050	mg/kg	SW846 8270C
Chrysene ^a	0.274	0.11	0.045	mg/kg	SW846 8270C
Fluorene ^a	0.114	0.11	0.039	mg/kg	SW846 8270C
Naphthalene ^a	0.934	0.11	0.043	mg/kg	SW846 8270C
Phenanthrene ^a	1.14	0.11	0.033	mg/kg	SW846 8270C
Pyrene ^a	1.03	0.11	0.034	mg/kg	SW846 8270C
Lead ^a	88.2	0.82	0.14	mg/kg	SW846 6010C

JB37361-4 AOI5_MW-454_8-10_051713

Benzene	3.82	0.11	0.013	mg/kg	SW846 8260B
Ethylbenzene	6.43	0.11	0.029	mg/kg	SW846 8260B
Xylene (total)	17.1	0.11	0.015	mg/kg	SW846 8260B
Isopropylbenzene	4.90	0.54	0.0081	mg/kg	SW846 8260B
1,2,4-Trimethylbenzene	19.1	0.54	0.023	mg/kg	SW846 8260B
1,3,5-Trimethylbenzene	6.30	0.54	0.017	mg/kg	SW846 8260B
Anthracene ^a	1.31	0.12	0.041	mg/kg	SW846 8270C

Summary of Hits

Job Number: JB37361
Account: Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA
Collected: 05/17/13



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
		0.250	0.12	0.046	mg/kg	SW846 8270C
		0.103 J	0.12	0.028	mg/kg	SW846 8270C
		0.0613 J	0.12	0.028	mg/kg	SW846 8270C
		0.0948 J	0.12	0.053	mg/kg	SW846 8270C
		0.276	0.12	0.048	mg/kg	SW846 8270C
		2.50	0.12	0.042	mg/kg	SW846 8270C
		1.73	0.12	0.046	mg/kg	SW846 8270C
		5.10	0.12	0.036	mg/kg	SW846 8270C
		2.76	0.12	0.036	mg/kg	SW846 8270C
		9.0	0.90	0.15	mg/kg	SW846 6010C

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

(b) Dilution required due to matrix interference.

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

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Client Sample ID:	AOI5_MW-457_0-1_051713	Date Sampled:	05/17/13
Lab Sample ID:	JB37361-1	Date Received:	05/17/13
Matrix:	SO - Soil	Percent Solids:	91.8
Method:	SW846 8260B		
Project:	Sun-Marcus Hook Refinery, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I184499.D	1	05/22/13	SJM	n/a	n/a	VI7452
Run #2							

Run #1	Initial Weight
Run #1	5.7 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.00096	0.00011	mg/kg	
108-88-3	Toluene	ND	0.00096	0.00010	mg/kg	
100-41-4	Ethylbenzene	ND	0.00096	0.00025	mg/kg	
1330-20-7	Xylene (total)	ND	0.00096	0.00013	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00096	0.00022	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00096	0.00013	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0048	0.000071	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0048	0.00020	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0048	0.00015	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		65-131%
17060-07-0	1,2-Dichloroethane-D4	112%		70-121%
2037-26-5	Toluene-D8	107%		80-128%
460-00-4	4-Bromofluorobenzene	123%		67-131%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	mg/kg	

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

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Client Sample ID:	AOI5_MW-457_0-1_051713	Date Sampled:	05/17/13
Lab Sample ID:	JB37361-1	Date Received:	05/17/13
Matrix:	SO - Soil	Percent Solids:	91.8
Method:	SW846 8270C SW846 3546		
Project:	Sun-Marcus Hook Refinery, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	R31129.D	1	06/02/13	AMA	05/31/13	M:OP33425	M:MSR1132
Run #2							

Run #	Initial Weight	Final Volume
Run #1	20.4 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	0.11	0.037	mg/kg	
56-55-3	Benzo(a)anthracene	0.0539	0.11	0.041	mg/kg	J
50-32-8	Benzo(a)pyrene	0.0527	0.11	0.025	mg/kg	J
205-99-2	Benzo(b)fluoranthene	ND	0.11	0.025	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.160	0.11	0.048	mg/kg	
218-01-9	Chrysene	0.0813	0.11	0.043	mg/kg	J
86-73-7	Fluorene	ND	0.11	0.037	mg/kg	
91-20-3	Naphthalene	0.133	0.11	0.041	mg/kg	
85-01-8	Phenanthrene	0.198	0.11	0.032	mg/kg	
129-00-0	Pyrene	0.202	0.11	0.032	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	66%		30-130%
321-60-8	2-Fluorobiphenyl	68%		30-130%
1718-51-0	Terphenyl-d14	89%		30-130%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

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Client Sample ID:	AOI5_MW-457_0-1_051713	Date Sampled:	05/17/13
Lab Sample ID:	JB37361-1	Date Received:	05/17/13
Matrix:	SO - Soil	Percent Solids:	91.8
Method:	SW846 8011 SW846 3550B		
Project:	Sun-Marcus Hook Refinery, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	BB48224.D	1	05/31/13	AMA	05/30/13	M:OP33407	M:GBB2882
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.4 g	50.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.0027	0.0010	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
460-00-4	Bromofluorobenzene (S)	125%		61-167%		
460-00-4	Bromofluorobenzene (S)	131%		61-167%		

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: AOI5_MW-457_0-1_051713	Date Sampled: 05/17/13
Lab Sample ID: JB37361-1	Date Received: 05/17/13
Matrix: SO - Soil	Percent Solids: 91.8
Project: Sun-Marcus Hook Refinery, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead ^a	103	0.83	0.14	mg/kg	1	05/30/13	05/31/13 AMA	SW846 6010C ¹	SW846 3050B ²

(1) Instrument QC Batch: M:MA15686

(2) Prep QC Batch: M:MP21087

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 B = Indicates a result > = MDL but < RL

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Accutest Laboratories

Report of Analysis

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Client Sample ID:	AOI5_MW-457_2-3_051713	Date Sampled:	05/17/13
Lab Sample ID:	JB37361-2	Date Received:	05/17/13
Matrix:	SO - Soil	Percent Solids:	82.2
Method:	SW846 8260B		
Project:	Sun-Marcus Hook Refinery, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	E203518.D	1	05/23/13	OTR	n/a	n/a	VE8944
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.5 g	10.0 ml	100 ul
Run #2			

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.10	0.012	mg/kg	
108-88-3	Toluene	ND	0.10	0.011	mg/kg	
100-41-4	Ethylbenzene	ND	0.10	0.027	mg/kg	
1330-20-7	Xylene (total)	ND	0.10	0.015	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.10	0.025	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.10	0.014	mg/kg	
98-82-8	Isopropylbenzene	0.219	0.52	0.0078	mg/kg	J
95-63-6	1,2,4-Trimethylbenzene	ND	0.52	0.022	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.52	0.017	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	89%		65-131%
17060-07-0	1,2-Dichloroethane-D4	90%		70-121%
2037-26-5	Toluene-D8	89%		80-128%
460-00-4	4-Bromofluorobenzene	93%		67-131%

(a) Dilution required due to matrix interference.

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

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Client Sample ID:	AOI5_MW-457_2-3_051713	Date Sampled:	05/17/13
Lab Sample ID:	JB37361-2	Date Received:	05/17/13
Matrix:	SO - Soil	Percent Solids:	82.2
Method:	SW846 8270C SW846 3546		
Project:	Sun-Marcus Hook Refinery, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	R31130.D	1	06/02/13	AMA	05/31/13	M:OP33425	M:MSR1132
Run #2							

Run #	Initial Weight	Final Volume
Run #1	20.4 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	0.0578	0.12	0.041	mg/kg	J
56-55-3	Benzo(a)anthracene	0.0698	0.12	0.046	mg/kg	J
50-32-8	Benzo(a)pyrene	0.0385	0.12	0.028	mg/kg	J
205-99-2	Benzo(b)fluoranthene	ND	0.12	0.028	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.12	0.054	mg/kg	
218-01-9	Chrysene	0.124	0.12	0.048	mg/kg	
86-73-7	Fluorene	ND	0.12	0.042	mg/kg	
91-20-3	Naphthalene	ND	0.12	0.046	mg/kg	
85-01-8	Phenanthrene	0.410	0.12	0.036	mg/kg	
129-00-0	Pyrene	0.126	0.12	0.036	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	71%		30-130%
321-60-8	2-Fluorobiphenyl	73%		30-130%
1718-51-0	Terphenyl-d14	73%		30-130%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	AOI5_MW-457_2-3_051713	Date Sampled:	05/17/13
Lab Sample ID:	JB37361-2	Date Received:	05/17/13
Matrix:	SO - Soil	Percent Solids:	82.2
Method:	SW846 8011 SW846 3550B		
Project:	Sun-Marcus Hook Refinery, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	BB48225.D	1	05/31/13	AMA	05/30/13	M:OP33407	M:GBB2882
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.2 g	50.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.0030	0.0012	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
460-00-4	Bromofluorobenzene (S)	127%		61-167%		
460-00-4	Bromofluorobenzene (S)	134%		61-167%		

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: AOI5_MW-457_2-3_051713 Lab Sample ID: JB37361-2 Matrix: SO - Soil Project: Sun-Marcus Hook Refinery, Philadelphia, PA	Date Sampled: 05/17/13 Date Received: 05/17/13 Percent Solids: 82.2
--	--

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead ^a	8.3	0.91	0.15	mg/kg	1	05/30/13	05/31/13 AMA	SW846 6010C ¹	SW846 3050B ²

(1) Instrument QC Batch: M:MA15686

(2) Prep QC Batch: M:MP21087

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 B = Indicates a result > = MDL but < RL

4.2
4

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	AOI5_MW-454_0-2_51713	Date Sampled:	05/17/13
Lab Sample ID:	JB37361-3	Date Received:	05/17/13
Matrix:	SO - Soil	Percent Solids:	90.2
Method:	SW846 8260B		
Project:	Sun-Marcus Hook Refinery, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I184500.D	1	05/22/13	SJM	n/a	n/a	VI7452
Run #2							

Run #1	Initial Weight
Run #1	6.9 g
Run #2	

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.00080	0.000096	mg/kg	
108-88-3	Toluene	ND	0.00080	0.000084	mg/kg	
100-41-4	Ethylbenzene	ND	0.00080	0.00021	mg/kg	
1330-20-7	Xylene (total)	ND	0.00080	0.00011	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00080	0.00019	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00080	0.00011	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0040	0.000060	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0040	0.00017	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0040	0.00013	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	109%		65-131%
17060-07-0	1,2-Dichloroethane-D4	120%		70-121%
2037-26-5	Toluene-D8	104%		80-128%
460-00-4	4-Bromofluorobenzene	120%		67-131%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	mg/kg	

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	AOI5_MW-454_0-2_51713	Date Sampled:	05/17/13
Lab Sample ID:	JB37361-3	Date Received:	05/17/13
Matrix:	SO - Soil	Percent Solids:	90.2
Method:	SW846 8270C SW846 3546		
Project:	Sun-Marcus Hook Refinery, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	R31131.D	1	06/02/13	AMA	05/31/13	M:OP33425	M:MSR1132
Run #2							

	Initial Weight	Final Volume
Run #1	20.0 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	0.169	0.11	0.038	mg/kg	
56-55-3	Benzo(a)anthracene	0.226	0.11	0.042	mg/kg	
50-32-8	Benzo(a)pyrene	0.183	0.11	0.026	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.128	0.11	0.026	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.309	0.11	0.050	mg/kg	
218-01-9	Chrysene	0.274	0.11	0.045	mg/kg	
86-73-7	Fluorene	0.114	0.11	0.039	mg/kg	
91-20-3	Naphthalene	0.934	0.11	0.043	mg/kg	
85-01-8	Phenanthrene	1.14	0.11	0.033	mg/kg	
129-00-0	Pyrene	1.03	0.11	0.034	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	76%		30-130%
321-60-8	2-Fluorobiphenyl	79%		30-130%
1718-51-0	Terphenyl-d14	79%		30-130%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	AOI5_MW-454_0-2_51713	Date Sampled:	05/17/13
Lab Sample ID:	JB37361-3	Date Received:	05/17/13
Matrix:	SO - Soil	Percent Solids:	90.2
Method:	SW846 8011 SW846 3550B		
Project:	Sun-Marcus Hook Refinery, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	BB48226.D	1	05/31/13	AMA	05/30/13	M:OP33407	M:GBB2882
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.5 g	50.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.0027	0.0010	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
460-00-4	Bromofluorobenzene (S)	122%		61-167%		
460-00-4	Bromofluorobenzene (S)	127%		61-167%		

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: AOI5_MW-454_0-2_51713 Lab Sample ID: JB37361-3 Matrix: SO - Soil Project: Sun-Marcus Hook Refinery, Philadelphia, PA	Date Sampled: 05/17/13 Date Received: 05/17/13 Percent Solids: 90.2
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Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead ^a	88.2	0.82	0.14	mg/kg	1	05/30/13	05/31/13 AMA	SW846 6010C ¹	SW846 3050B ²

(1) Instrument QC Batch: M:MA15686

(2) Prep QC Batch: M:MP21087

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 B = Indicates a result > = MDL but < RL

4.3
4

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	AOI5_MW-454_8-10_051713	Date Sampled:	05/17/13
Lab Sample ID:	JB37361-4	Date Received:	05/17/13
Matrix:	SO - Soil	Percent Solids:	83.1
Method:	SW846 8260B		
Project:	Sun-Marcus Hook Refinery, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	E203519.D	1	05/23/13	OTR	n/a	n/a	VE8944
Run #2 ^a	E203536.D	1	05/23/13	OTR	n/a	n/a	VE8945

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.1 g	10.0 ml	100 ul
Run #2	6.1 g	10.0 ml	10.0 ul

Leaded Gasoline and Aviation Gas List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	3.82	0.11	0.013	mg/kg	
108-88-3	Toluene	ND	0.11	0.011	mg/kg	
100-41-4	Ethylbenzene	6.43	0.11	0.029	mg/kg	
1330-20-7	Xylene (total)	17.1	0.11	0.015	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.11	0.026	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.11	0.015	mg/kg	
98-82-8	Isopropylbenzene	4.90	0.54	0.0081	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	19.1	0.54	0.023	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	6.30	0.54	0.017	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	89%	87%	65-131%
17060-07-0	1,2-Dichloroethane-D4	88%	84%	70-121%
2037-26-5	Toluene-D8	144% ^b	96%	80-128%
460-00-4	4-Bromofluorobenzene	129%	98%	67-131%

(a) Confirmation run for surrogate recoveries.

(b) Outside control limits due to matrix interference. Confirmed by reanalysis.

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	AOI5_MW-454_8-10_051713	Date Sampled:	05/17/13
Lab Sample ID:	JB37361-4	Date Received:	05/17/13
Matrix:	SO - Soil	Percent Solids:	83.1
Method:	SW846 8270C SW846 3546		
Project:	Sun-Marcus Hook Refinery, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	R31132.D	1	06/02/13	AMA	05/31/13	M:OP33425	M:MSR1132
Run #2							

Run #	Initial Weight	Final Volume
Run #1	20.2 g	1.0 ml
Run #2		

BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	1.31	0.12	0.041	mg/kg	
56-55-3	Benzo(a)anthracene	0.250	0.12	0.046	mg/kg	
50-32-8	Benzo(a)pyrene	0.103	0.12	0.028	mg/kg	J
205-99-2	Benzo(b)fluoranthene	0.0613	0.12	0.028	mg/kg	J
191-24-2	Benzo(g,h,i)perylene	0.0948	0.12	0.053	mg/kg	J
218-01-9	Chrysene	0.276	0.12	0.048	mg/kg	
86-73-7	Fluorene	2.50	0.12	0.042	mg/kg	
91-20-3	Naphthalene	1.73	0.12	0.046	mg/kg	
85-01-8	Phenanthrene	5.10	0.12	0.036	mg/kg	
129-00-0	Pyrene	2.76	0.12	0.036	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	71%		30-130%
321-60-8	2-Fluorobiphenyl	61%		30-130%
1718-51-0	Terphenyl-d14	112%		30-130%

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	AOI5_MW-454_8-10_051713	Date Sampled:	05/17/13
Lab Sample ID:	JB37361-4	Date Received:	05/17/13
Matrix:	SO - Soil	Percent Solids:	83.1
Method:	SW846 8011 SW846 3550B		
Project:	Sun-Marcus Hook Refinery, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	BB48227.D	1	05/31/13	AMA	05/30/13	M:OP33407	M:GBB2882
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.2 g	50.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.0030	0.0012	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
460-00-4	Bromofluorobenzene (S)	126%		61-167%		
460-00-4	Bromofluorobenzene (S)	124%		61-167%		

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

ND = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: AOI5_MW-454_8-10_051713 Lab Sample ID: JB37361-4 Matrix: SO - Soil Project: Sun-Marcus Hook Refinery, Philadelphia, PA	Date Sampled: 05/17/13 Date Received: 05/17/13 Percent Solids: 83.1
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Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead ^a	9.0	0.90	0.15	mg/kg	1	05/30/13	05/31/13 AMA	SW846 6010C ¹	SW846 3050B ²

(1) Instrument QC Batch: M:MA15686

(2) Prep QC Batch: M:MP21087

(a) Analysis performed at Accutest Laboratories, Marlborough, MA.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 B = Indicates a result > = MDL but < RL

4.4
4

Misc. Forms

5

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- Sample Tracking Chronicle
- Internal Chain of Custody

SM

2235 Route 130, Dayton, NJ 08810
TEL: 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

FED-EX Tracking # _____ Bottle Order Control # _____
Accutest Quote # _____ Accutest Job # **JB3736**

Client / Reporting Information		Project Information		Requested Analysis (see TEST CODE sheet)										Matrix Codes					
Company Name AQUATEKNA TECHNOLOGIES		Project Name MARQUIS HOOK REFINERY AOIS		<p style="writing-mode: vertical-rl; transform: rotate(180deg);"> USE ATTACHED FOR LIST OF ANALYSES </p>										DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank					
Street Address 122 S. Church St.		Street																	
City, State, Zip West Chester, PA 19382		Billing Information (If different from Report to)																	
Project Contact TIFFINI DOERR		Company Name																	
Phone # _____ Fax # _____		Project # _____		Street Address		City		State		Zip									
Sampler(s) Name(s) LUKE MOKRYSKI, TREV GUNDEL		Project Manager JIM OPPENHEIM		Attention:															
Accutest Sample #	Field ID / Point of Collection	MEQHD/Vial #	Date	Time	Sampled by	Matrix	# of bottles	HC	NH ₃	NO ₂	NO ₃	HRSO ₄	NO ₂	NO ₃	DI Water	MEDI	ENDURE	LAB USE ONLY	
1	APIS-MW-457-0-1-051713	56-67	5-17-13	0900	YJ	SO	5								2	2	1		
2	APIS-MW-457-2-3-051713	776-271	5-17-13	0930	YJ	SO	5								2	2	1		SUB
3	APIS-MW-454-0-2-51317	272-273	5-17-13	0900	LM	SO	5								2	2	1		
7	APIS-MV-754-8-10-51711	1689	5-17-13	1430	LM	SO	5								2	2	1		
		284-285																	
Turnaround Time (Business days)		Approved By (Accutest PM) / Date:		Data Deliverable Information										Comments / Special Instructions					
<input type="checkbox"/> Std. 15 Business Days <input checked="" type="checkbox"/> Std. 10 Business Days (by Contract only) <input type="checkbox"/> 10 Day RUSH <input type="checkbox"/> 5 Day RUSH <input type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY <small>Emergency & Rush T/A data available VIA Lablink</small>				<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> FULLT1 (Level 3+4) <input checked="" type="checkbox"/> NJ Reduced <input type="checkbox"/> Commercial "C" <small>Commercial "A" = Results Only Commercial "B" = Results + QC Summary NJ Reduced = Results + QC Summary + Partial Raw data</small>										D.I. slurry voc vials frozen storage Date: 5/17/13 Time: 21:40 Initials: JG					
Sample Custody must be documented below each time samples change possession, including courier delivery.																			
Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:														
1 Luke M M K S K I	15:30 5/17/13	1	2	1417	2														
3		3	4	5/17/13	4														
5		5																	
Custody Seal #		<input type="checkbox"/> Intact <input type="checkbox"/> Not intact		Preserved where applicable															

CE

5.1
5

JB37361

Constituents of Concern for Soil
Sunoco Philadelphia Refinery
Philadelphia, Pennsylvania

METALS	CAS No.	Method
Lead (total)	7439-92-1	SW846 80109/C-LD
VOLATILE ORGANIC COMPOUNDS		
	CAS No.	Method
1,2-Dichloroethane	107-06-2	
1,2,4-Trimethylbenzene	95-63-6	
1,3,5-Trimethylbenzene	108-67-8	
Benzene	71-43-2	
Cumene	98-82-6	
Ethylbenzene	100-41-4	
Methyl tertiary butyl ether	1634-04-4	
Toluene	108-88-3	
Xylenes (total)	1330-20-7	
Ethylene dibromide	106-93-4	SW846 82609/C-LD
SEMI-VOLATILE ORGANIC COMPOUNDS		
	CAS No.	Method
Anthracene	120-12-7	
Benzo(a)anthracene	56-55-3	
Benzo(b,h,i)perylene	191-24-2	
Benzo(a)pyrene	50-32-8	
Benzo(b)fluoranthene	206-99-2	
Chrysene	21801-9	
Fluorene	86-73-7	
Naphthalene**	91-20-3	
Phenanthrene	85-01-8	
Pyrene	129-00-0	SW846 8270C/D-LD

Notes:

As indicated by the "LD", all samples are to be analyzed using the lowest dilution possible.
**For tank investigations, Naphthalene is to be run using analytical method SW846 8260 and should be appropriately marked on the chain of custody.

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB37361 Client: _____ Project: _____

Date / Time Received: 5/17/2013 Delivery Method: _____ Airbill #s: _____

Cooler Temps (Initial/Adjusted): #1: (5.2/5.2); 0

<u>Cooler Security</u>	<u>Y</u>	<u>or</u>	<u>N</u>		<u>Y</u>	<u>or</u>	<u>N</u>
1. Custody Seals Present:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	4. Smpl Dates/Time OK	<input checked="" type="checkbox"/>		<input type="checkbox"/>

<u>Cooler Temperature</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Temp criteria achieved:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Cooler temp verification:	_____		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

<u>Quality Control Preservation</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Trip Blank present / cooler:	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Trip Blank listed on COC:	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Samples preserved properly:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
4. VOCs headspace free:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

<u>Sample Integrity - Documentation</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Sample labels present on bottles:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Container labeling complete:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Sample container label / COC agree:	<input checked="" type="checkbox"/>		<input type="checkbox"/>

<u>Sample Integrity - Condition</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Sample recvd within HT:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. All containers accounted for:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Condition of sample:	Intact		

<u>Sample Integrity - Instructions</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Analysis requested is clear:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
2. Bottles received for unspecified tests	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Sufficient volume recvd for analysis:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
4. Compositing instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments

5.1
5

Internal Sample Tracking Chronicle

Aquaterra Technologies, Inc.

Job No: JB37361

Sun-Marcus Hook Refinery, Philadelphia, PA
 Project No: AOI-5

5.2
5

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB37361-1 Collected: 17-MAY-13 09:00 By: LM Received: 17-MAY-13 By: TH AOI5_MW-457_0-1_051713						
JB37361-1	SW846 8260B	22-MAY-13 02:28	SJM			V8260SL
JB37361-1	SM21 2540 B MOD.	30-MAY-13	AMA			%SOL
JB37361-1	SW846 8011	31-MAY-13 10:28	AMA	30-MAY-13	AMA	V8011EDB
JB37361-1	SW846 6010C	31-MAY-13 11:49	AMA	30-MAY-13	AMA	PB
JB37361-1	SW846 8270C	02-JUN-13 14:20	AMA	31-MAY-13	AMA	B8270SL
JB37361-2 Collected: 17-MAY-13 09:30 By: LM Received: 17-MAY-13 By: TH AOI5_MW-457_2-3_051713						
JB37361-2	SW846 8260B	23-MAY-13 06:22	OTR			V8260SL
JB37361-2	SM21 2540 B MOD.	30-MAY-13	AMA			%SOL
JB37361-2	SW846 8011	31-MAY-13 10:56	AMA	30-MAY-13	AMA	V8011EDB
JB37361-2	SW846 6010C	31-MAY-13 11:53	AMA	30-MAY-13	AMA	PB
JB37361-2	SW846 8270C	02-JUN-13 14:43	AMA	31-MAY-13	AMA	B8270SL
JB37361-3 Collected: 17-MAY-13 09:00 By: LM Received: 17-MAY-13 By: TH AOI5_MW-454_0-2_51713						
JB37361-3	SW846 8260B	22-MAY-13 06:02	SJM			V8260SL
JB37361-3	SM21 2540 B MOD.	30-MAY-13	AMA			%SOL
JB37361-3	SW846 8011	31-MAY-13 11:24	AMA	30-MAY-13	AMA	V8011EDB
JB37361-3	SW846 6010C	31-MAY-13 11:57	AMA	30-MAY-13	AMA	PB
JB37361-3	SW846 8270C	02-JUN-13 15:05	AMA	31-MAY-13	AMA	B8270SL
JB37361-4 Collected: 17-MAY-13 14:30 By: LM Received: 17-MAY-13 By: TH AOI5_MW-454_8-10_051713						
JB37361-4	SW846 8260B	23-MAY-13 06:52	OTR			V8260SL
JB37361-4	SW846 8260B	23-MAY-13 16:51	OTR			V8260SL
JB37361-4	SM21 2540 B MOD.	30-MAY-13	AMA			%SOL
JB37361-4	SW846 8011	31-MAY-13 11:53	AMA	30-MAY-13	AMA	V8011EDB
JB37361-4	SW846 6010C	31-MAY-13 12:02	AMA	30-MAY-13	AMA	PB
JB37361-4	SW846 8270C	02-JUN-13 15:28	AMA	31-MAY-13	AMA	B8270SL

Accutest Internal Chain of Custody

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA
Received: 05/17/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB37361-1.1	Secured Storage	Robert Lofrano	05/29/13 13:43	Retrieve from Storage
JB37361-1.1	Robert Lofrano		05/29/13 13:45	Subcontract
JB37361-1.2	Secured Storage	Robert Lofrano	05/29/13 13:43	Retrieve from Storage
JB37361-1.2	Robert Lofrano		05/29/13 13:45	Subcontract
JB37361-1.4	Secured Storage	Scott McGonigal	05/21/13 14:19	Retrieve from Storage
JB37361-1.4	Scott McGonigal	GCMSI	05/21/13 14:19	Load on Instrument
JB37361-1.4	GCMSI	Scott McGonigal	05/22/13 11:03	Unload from Instrument
JB37361-1.4	Scott McGonigal		05/22/13 11:04	Depleted
JB37361-1.5	Secured Storage	Scott McGonigal	05/21/13 16:37	Retrieve from Storage
JB37361-1.5	Scott McGonigal	GCMSI	05/21/13 16:37	Load on Instrument
JB37361-1.5	GCMSI	Scott McGonigal	05/22/13 11:03	Unload from Instrument
JB37361-1.5	Scott McGonigal		05/22/13 11:04	Depleted
JB37361-2.1	Secured Storage	Robert Lofrano	05/29/13 13:43	Retrieve from Storage
JB37361-2.1	Robert Lofrano		05/29/13 13:45	Subcontract
JB37361-2.2	Secured Storage	Robert Lofrano	05/29/13 13:43	Retrieve from Storage
JB37361-2.2	Robert Lofrano		05/29/13 13:45	Subcontract
JB37361-2.3	Secured Storage	Oksana Treglazova	05/22/13 15:54	Retrieve from Storage
JB37361-2.3	Oksana Treglazova	Secured Storage	05/22/13 15:56	Return to Storage
JB37361-2.4	Secured Storage	Scott McGonigal	05/21/13 14:19	Retrieve from Storage
JB37361-2.4	Scott McGonigal	GCMSI	05/21/13 14:19	Load on Instrument
JB37361-2.4	GCMSI	Scott McGonigal	05/21/13 16:34	Unload from Instrument
JB37361-2.4	Scott McGonigal	Secured Storage	05/21/13 16:34	Return to Storage
JB37361-3.1	Secured Storage	Robert Lofrano	05/29/13 13:43	Retrieve from Storage
JB37361-3.1	Robert Lofrano		05/29/13 13:45	Subcontract
JB37361-3.2	Secured Storage	Robert Lofrano	05/29/13 13:43	Retrieve from Storage
JB37361-3.2	Robert Lofrano		05/29/13 13:45	Subcontract
JB37361-3.4	Secured Storage	Scott McGonigal	05/21/13 14:19	Retrieve from Storage
JB37361-3.4	Scott McGonigal	GCMSI	05/21/13 14:19	Load on Instrument
JB37361-3.4	GCMSI	Scott McGonigal	05/22/13 11:03	Unload from Instrument
JB37361-3.4	Scott McGonigal		05/22/13 11:04	Depleted
JB37361-4.1	Secured Storage	Robert Lofrano	05/29/13 13:43	Retrieve from Storage
JB37361-4.1	Robert Lofrano		05/29/13 13:45	Subcontract

5.3
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Accutest Internal Chain of Custody

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA
Received: 05/17/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB37361-4.2	Secured Storage	Robert Lofrano	05/29/13 13:43	Retrieve from Storage
JB37361-4.2	Robert Lofrano		05/29/13 13:45	Subcontract
JB37361-4.3	Secured Storage	Oksana Treglazova	05/22/13 15:54	Retrieve from Storage
JB37361-4.3	Oksana Treglazova	Secured Storage	05/22/13 15:56	Return to Storage
JB37361-4.3	Secured Storage	Oksana Treglazova	05/23/13 16:02	Retrieve from Storage
JB37361-4.3	Oksana Treglazova	Secured Storage	05/23/13 16:02	Return to Storage
JB37361-4.4	Secured Storage	Scott McGonigal	05/21/13 14:19	Retrieve from Storage
JB37361-4.4	Scott McGonigal	GCMSI	05/21/13 14:19	Load on Instrument
JB37361-4.4	GCMSI	Scott McGonigal	05/21/13 16:34	Unload from Instrument
JB37361-4.4	Scott McGonigal	Secured Storage	05/21/13 16:34	Return to Storage

5.3
5

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Instrument Performance Checks (BFB)
- Internal Standard Area Summaries
- Surrogate Recovery Summaries
- Initial and Continuing Calibration Summaries

Method Blank Summary**Job Number:** JB37361**Account:** AQTPAW Aquaterra Technologies, Inc.**Project:** Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI7452-MB1	I184488.D	1	05/21/13	SJM	n/a	n/a	VI7452

The QC reported here applies to the following samples:**Method:** SW846 8260B

JB37361-1, JB37361-3

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.12	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	0.14	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	0.26	ug/kg	
98-82-8	Isopropylbenzene	ND	5.0	0.074	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.24	ug/kg	
108-88-3	Toluene	ND	1.0	0.11	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	5.0	0.21	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	5.0	0.16	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	0.14	ug/kg	

CAS No.	Surrogate Recoveries	Limits	
1868-53-7	Dibromofluoromethane	102%	70-130%
17060-07-0	1,2-Dichloroethane-D4	103%	70-122%
2037-26-5	Toluene-D8	104%	81-127%
460-00-4	4-Bromofluorobenzene	113%	66-132%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/kg	

Method Blank Summary**Job Number:** JB37361**Account:** AQTPAW Aquaterra Technologies, Inc.**Project:** Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE8944-MB	E203504.D	1	05/22/13	OTR	n/a	n/a	VE8944

The QC reported here applies to the following samples:**Method:** SW846 8260B

JB37361-2, JB37361-4

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	50	6.0	ug/kg	
107-06-2	1,2-Dichloroethane	ND	50	6.8	ug/kg	
100-41-4	Ethylbenzene	ND	50	13	ug/kg	
98-82-8	Isopropylbenzene	ND	250	3.7	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	50	12	ug/kg	
108-88-3	Toluene	ND	50	5.3	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	250	10	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	250	8.0	ug/kg	
1330-20-7	Xylene (total)	ND	50	7.0	ug/kg	

CAS No.	Surrogate Recoveries	Limits	
1868-53-7	Dibromofluoromethane	89%	70-130%
17060-07-0	1,2-Dichloroethane-D4	92%	70-122%
2037-26-5	Toluene-D8	91%	81-127%
460-00-4	4-Bromofluorobenzene	91%	66-132%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/kg	

Blank Spike Summary

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VI7452-BS	I184489.D	1	05/21/13	SJM	n/a	n/a	VI7452

The QC reported here applies to the following samples:

Method: SW846 8260B

JB37361-1, JB37361-3

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	52.0	104	76-117
107-06-2	1,2-Dichloroethane	50	67.2	134	68-134
100-41-4	Ethylbenzene	50	54.1	108	74-119
98-82-8	Isopropylbenzene	50	54.7	109	71-119
1634-04-4	Methyl Tert Butyl Ether	50	51.4	103	72-124
108-88-3	Toluene	50	52.9	106	77-121
95-63-6	1,2,4-Trimethylbenzene	50	54.0	108	72-118
108-67-8	1,3,5-Trimethylbenzene	50	54.9	110	69-118
1330-20-7	Xylene (total)	150	159	106	76-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	97%	70-130%
17060-07-0	1,2-Dichloroethane-D4	108%	70-122%
2037-26-5	Toluene-D8	104%	81-127%
460-00-4	4-Bromofluorobenzene	105%	66-132%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE8944-BS	E203505.D	1	05/22/13	OTR	n/a	n/a	VE8944

The QC reported here applies to the following samples:

Method: SW846 8260B

JB37361-2, JB37361-4

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2770	111	76-117
107-06-2	1,2-Dichloroethane	2500	2590	104	68-134
100-41-4	Ethylbenzene	2500	2740	110	74-119
98-82-8	Isopropylbenzene	2500	2790	112	71-119
1634-04-4	Methyl Tert Butyl Ether	5000	5110	102	72-124
108-88-3	Toluene	2500	2730	109	77-121
95-63-6	1,2,4-Trimethylbenzene	2500	2680	107	72-118
108-67-8	1,3,5-Trimethylbenzene	2500	2700	108	69-118
1330-20-7	Xylene (total)	7500	7870	105	76-119

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	96%	70-130%
17060-07-0	1,2-Dichloroethane-D4	89%	70-122%
2037-26-5	Toluene-D8	92%	81-127%
460-00-4	4-Bromofluorobenzene	95%	66-132%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB37477-1MS	I184490.D	1	05/21/13	SJM	n/a	n/a	VI7452
JB37477-1MSD	I184491.D	1	05/21/13	SJM	n/a	n/a	VI7452
JB37477-1	I184493.D	1	05/21/13	SJM	n/a	n/a	VI7452

The QC reported here applies to the following samples:

Method: SW846 8260B

JB37361-1, JB37361-3

CAS No.	Compound	JB37477-1 ug/kg	Spike Q ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	51.9	51.7	100	51.8	100	0	47-130/22
107-06-2	1,2-Dichloroethane	ND	51.9	68.3	132	69.9	135	2	46-135/21
100-41-4	Ethylbenzene	ND	51.9	52.7	102	52.4	101	1	30-139/25
98-82-8	Isopropylbenzene	ND	51.9	54.5	105	53.6	103	2	30-140/27
1634-04-4	Methyl Tert Butyl Ether	ND	104	101	97	104	100	3	50-127/21
108-88-3	Toluene	ND	51.9	53.2	103	53.2	103	0	38-136/24
95-63-6	1,2,4-Trimethylbenzene	ND	51.9	51.9	100	52.6	101	1	20-145/28
108-67-8	1,3,5-Trimethylbenzene	ND	51.9	53.8	104	54.1	104	1	24-142/28
1330-20-7	Xylene (total)	ND	156	154	99	155	100	1	31-140/26

CAS No.	Surrogate Recoveries	MS	MSD	JB37477-1	Limits
1868-53-7	Dibromofluoromethane	97%	97%	104%	65-131%
17060-07-0	1,2-Dichloroethane-D4	109%	109%	109%	70-121%
2037-26-5	Toluene-D8	104%	103%	103%	80-128%
460-00-4	4-Bromofluorobenzene	108%	109%	111%	67-131%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB37249-1MS	E203506.D	1	05/23/13	OTR	n/a	n/a	VE8944
JB37249-1MSD	E203507.D	1	05/23/13	OTR	n/a	n/a	VE8944
JB37249-1 ^a	E203509.D	1	05/23/13	OTR	n/a	n/a	VE8944

The QC reported here applies to the following samples:

Method: SW846 8260B

JB37361-2, JB37361-4

CAS No.	Compound	JB37249-1 ug/kg	Spike Q ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND	5160	5920	115	5900	114	0	47-130/22
107-06-2	1,2-Dichloroethane	ND	5160	5560	108	5520	107	1	46-135/21
100-41-4	Ethylbenzene	93.2	5160	5900	113	5830	111	1	30-139/25
98-82-8	Isopropylbenzene	45.3	5160	5890	113	5830	112	1	30-140/27
1634-04-4	Methyl Tert Butyl Ether	ND	5160	5650	109	5550	108	2	50-127/21
108-88-3	Toluene	80.6	5160	5890	113	5930	113	1	38-136/24
95-63-6	1,2,4-Trimethylbenzene	1100	5160	6480	104	6390	103	1	20-145/28
108-67-8	1,3,5-Trimethylbenzene	357	5160	6170	113	6120	112	1	24-142/28
1330-20-7	Xylene (total)	503	15500	17400	109	17100	107	2	31-140/26

CAS No.	Surrogate Recoveries	MS	MSD	JB37249-1	Limits
1868-53-7	Dibromofluoromethane	94%	94%		65-131%
17060-07-0	1,2-Dichloroethane-D4	89%	88%		70-121%
2037-26-5	Toluene-D8	91%	91%		80-128%
460-00-4	4-Bromofluorobenzene	94%	93%		67-131%

(a) Sample used for QC purposes only. Confirmation run.

* = Outside of Control Limits.

Instrument Performance Check (BFB)

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8922-BFB	Injection Date: 05/09/13
Lab File ID: E202991.D	Injection Time: 11:57
Instrument ID: GCMSE	

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	15.0 - 40.0% of mass 95	9499	20.5	Pass
75	30.0 - 60.0% of mass 95	22810	49.1	Pass
95	Base peak, 100% relative abundance	46437	100.0	Pass
96	5.0 - 9.0% of mass 95	3207	6.91	Pass
173	Less than 2.0% of mass 174	0	0.00 (0.00) ^a	Pass
174	50.0 - 120.0% of mass 95	44813	96.5	Pass
175	5.0 - 9.0% of mass 174	3651	7.86 (8.15) ^a	Pass
176	95.0 - 101.0% of mass 174	44253	95.3 (98.8) ^a	Pass
177	5.0 - 9.0% of mass 176	2895	6.23 (6.54) ^b	Pass

(a) Value is % of mass 174

(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VE8922-IC8922	E202992.D	05/09/13	12:28	00:31	Initial cal 0.5
VE8922-IC8922	E202993.D	05/09/13	12:57	01:00	Initial cal 1
VE8922-IC8922	E202994.D	05/09/13	13:27	01:30	Initial cal 2
VE8922-IC8922	E202995.D	05/09/13	13:57	02:00	Initial cal 5
VE8922-IC8922	E202996.D	05/09/13	14:28	02:31	Initial cal 10
VE8922-IC8922	E202997.D	05/09/13	14:58	03:01	Initial cal 20
VE8922-ICC8922	E202998.D	05/09/13	15:28	03:31	Initial cal 50
VE8922-IC8922	E202999.D	05/09/13	15:58	04:01	Initial cal 100
VE8922-IC8922	E203000.D	05/09/13	16:29	04:32	Initial cal 200
VE8922-ICV8922	E203003.D	05/09/13	17:59	06:02	Initial cal verification 50

6.4.1

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Instrument Performance Check (BFB)

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8944-BFB	Injection Date: 05/22/13
Lab File ID: E203501.D	Injection Time: 21:48
Instrument ID: GCMSE	

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	15.0 - 40.0% of mass 95	15753	20.1	Pass
75	30.0 - 60.0% of mass 95	39178	50.0	Pass
95	Base peak, 100% relative abundance	78413	100.0	Pass
96	5.0 - 9.0% of mass 95	5313	6.78	Pass
173	Less than 2.0% of mass 174	0	0.00 (0.00) ^a	Pass
174	50.0 - 120.0% of mass 95	74450	94.9	Pass
175	5.0 - 9.0% of mass 174	5949	7.59 (7.99) ^a	Pass
176	95.0 - 101.0% of mass 174	73168	93.3 (98.3) ^a	Pass
177	5.0 - 9.0% of mass 176	4945	6.31 (6.76) ^b	Pass

(a) Value is % of mass 174

(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VE8944-CC8922	E203502.D	05/22/13	22:18	00:30	Continuing cal 50
VE8944-MB	E203504.D	05/22/13	23:18	01:30	Method Blank
VE8944-BS	E203505.D	05/22/13	23:48	02:00	Blank Spike
JB37249-1MS	E203506.D	05/23/13	00:19	02:31	Matrix Spike
JB37249-1MSD	E203507.D	05/23/13	00:49	03:01	Matrix Spike Duplicate
JB37249-1	E203509.D	05/23/13	01:50	04:02	(used for QC only; not part of job JB37361)
ZZZZZZ	E203513.D	05/23/13	03:51	06:03	(unrelated sample)
ZZZZZZ	E203514.D	05/23/13	04:21	06:33	(unrelated sample)
ZZZZZZ	E203516.D	05/23/13	05:21	07:33	(unrelated sample)
ZZZZZZ	E203517.D	05/23/13	05:52	08:04	(unrelated sample)
JB37361-2	E203518.D	05/23/13	06:22	08:34	AOI5_MW-457_2-3_051713
JB37361-4	E203519.D	05/23/13	06:52	09:04	AOI5_MW-454_8-10_051713

Instrument Performance Check (BFB)

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8945-BFB	Injection Date: 05/23/13
Lab File ID: E203525.D	Injection Time: 10:44
Instrument ID: GCMSE	

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	15.0 - 40.0% of mass 95	7557	19.1	Pass
75	30.0 - 60.0% of mass 95	19245	48.7	Pass
95	Base peak, 100% relative abundance	39482	100.0	Pass
96	5.0 - 9.0% of mass 95	2564	6.49	Pass
173	Less than 2.0% of mass 174	0	0.00 (0.00) ^a	Pass
174	50.0 - 120.0% of mass 95	36522	92.5	Pass
175	5.0 - 9.0% of mass 174	2842	7.20 (7.78) ^a	Pass
176	95.0 - 101.0% of mass 174	35168	89.1 (96.3) ^a	Pass
177	5.0 - 9.0% of mass 176	2387	6.05 (6.79) ^b	Pass

(a) Value is % of mass 174

(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VE8945-CC8922	E203527.D	05/23/13	12:09	01:25	Continuing cal 20
VE8945-MB	E203529.D	05/23/13	13:14	02:30	Method Blank
VE8945-BS	E203530.D	05/23/13	13:46	03:02	Blank Spike
ZZZZZZ	E203531.D	05/23/13	14:20	03:36	(unrelated sample)
ZZZZZZ	E203532.D	05/23/13	14:50	04:06	(unrelated sample)
ZZZZZZ	E203534.D	05/23/13	15:50	05:06	(unrelated sample)
ZZZZZZ	E203535.D	05/23/13	16:21	05:37	(unrelated sample)
JB37361-4	E203536.D	05/23/13	16:51	06:07	AOI5_MW-454_8-10_051713
ZZZZZZ	E203537.D	05/23/13	17:22	06:38	(unrelated sample)
ZZZZZZ	E203538.D	05/23/13	17:52	07:08	(unrelated sample)
JB37127-1MS	E203539.D	05/23/13	18:23	07:39	Matrix Spike
JB37127-1MSD	E203540.D	05/23/13	18:54	08:10	Matrix Spike Duplicate
JB37127-1	E203542.D	05/23/13	19:55	09:11	(used for QC only; not part of job JB37361)
ZZZZZZ	E203544.D	05/23/13	20:56	10:12	(unrelated sample)
ZZZZZZ	E203545.D	05/23/13	21:27	10:43	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VI7422-BFB1	Injection Date: 04/26/13
Lab File ID: I183726.D	Injection Time: 16:11
Instrument ID: GCMSI	

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	15.0 - 40.0% of mass 95	14670	15.9	Pass
75	30.0 - 60.0% of mass 95	41472	44.9	Pass
95	Base peak, 100% relative abundance	92413	100.0	Pass
96	5.0 - 9.0% of mass 95	6292	6.81	Pass
173	Less than 2.0% of mass 174	0	0.00 (0.00) ^a	Pass
174	50.0 - 120.0% of mass 95	83200	90.0	Pass
175	5.0 - 9.0% of mass 174	6686	7.23 (8.04) ^a	Pass
176	95.0 - 101.0% of mass 174	81016	87.7 (97.4) ^a	Pass
177	5.0 - 9.0% of mass 176	5324	5.76 (6.57) ^b	Pass

(a) Value is % of mass 174

(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VI7422-IC7422	I183727.D	04/26/13	16:52	00:41	Initial cal 0.5
VI7422-IC7422	I183728.D	04/26/13	17:21	01:10	Initial cal 1
VI7422-IC7422	I183729.D	04/26/13	17:49	01:38	Initial cal 2
VI7422-IC7422	I183730.D	04/26/13	18:18	02:07	Initial cal 5
VI7422-IC7422	I183731.D	04/26/13	18:47	02:36	Initial cal 10
VI7422-IC7422	I183732.D	04/26/13	19:16	03:05	Initial cal 200
VI7422-IC7422	I183733.D	04/26/13	20:14	04:03	Initial cal 100
VI7422-ICC7422	I183734.D	04/26/13	21:11	05:00	Initial cal 50
VI7422-IC7422	I183735.D	04/26/13	21:40	05:29	Initial cal 20
VI7422-ICV7422	I183736.D	04/26/13	22:09	05:58	Initial cal verification 50
VI7422-ICV7422	I183737.D	04/26/13	23:36	07:25	Initial cal verification 50

Instrument Performance Check (BFB)

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VI7452-BFB1	Injection Date: 05/21/13
Lab File ID: I184485.D	Injection Time: 18:44
Instrument ID: GCMSI	

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	15.0 - 40.0% of mass 95	7983	18.0	Pass
75	30.0 - 60.0% of mass 95	21648	48.8	Pass
95	Base peak, 100% relative abundance	44320	100.0	Pass
96	5.0 - 9.0% of mass 95	2948	6.65	Pass
173	Less than 2.0% of mass 174	0	0.00 (0.00) ^a	Pass
174	50.0 - 120.0% of mass 95	39000	88.0	Pass
175	5.0 - 9.0% of mass 174	3078	6.94 (7.89) ^a	Pass
176	95.0 - 101.0% of mass 174	37312	84.2 (95.7) ^a	Pass
177	5.0 - 9.0% of mass 176	2505	5.65 (6.71) ^b	Pass

(a) Value is % of mass 174

(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VI7452-CC7422	I184486.D	05/21/13	19:42	00:58	Continuing cal 50
VI7452-MB1	I184488.D	05/21/13	20:40	01:56	Method Blank
VI7452-BS	I184489.D	05/21/13	21:38	02:54	Blank Spike
JB37477-1MS	I184490.D	05/21/13	22:07	03:23	Matrix Spike
JB37477-1MSD	I184491.D	05/21/13	22:36	03:52	Matrix Spike Duplicate
JB37477-1	I184493.D	05/21/13	23:34	04:50	(used for QC only; not part of job JB37361)
ZZZZZZ	I184494.D	05/22/13	00:03	05:19	(unrelated sample)
ZZZZZZ	I184495.D	05/22/13	00:32	05:48	(unrelated sample)
ZZZZZZ	I184496.D	05/22/13	01:01	06:17	(unrelated sample)
ZZZZZZ	I184497.D	05/22/13	01:30	06:46	(unrelated sample)
ZZZZZZ	I184498.D	05/22/13	01:59	07:15	(unrelated sample)
JB37361-1	I184499.D	05/22/13	02:28	07:44	AOI5_MW-457_0-1_051713
JB37361-3	I184500.D	05/22/13	06:02	11:18	AOI5_MW-454_0-2_51713
ZZZZZZ	I184501.D	05/22/13	06:31	11:47	(unrelated sample)

Volatile Internal Standard Area Summary

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Check Std: VE8944-CC8922	Injection Date: 05/22/13
Lab File ID: E203502.D	Injection Time: 22:18
Instrument ID: GCMSE	Method: SW846 8260B

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	166432	7.70	253905	9.90	361516	10.82	338975	14.15	180578	16.72
Upper Limit ^a	332864	8.20	507810	10.40	723032	11.32	677950	14.65	361156	17.22
Lower Limit ^b	83216	7.20	126953	9.40	180758	10.32	169488	13.65	90289	16.22

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VE8944-MB	143923	7.71	267300	9.90	371201	10.82	340230	14.15	189648	16.72
VE8944-BS	166532	7.70	254669	9.90	366914	10.82	344479	14.15	182164	16.72
JB37249-1MS	148210	7.70	258292	9.90	368497	10.82	346351	14.15	185820	16.72
JB37249-1MSD	153885	7.69	260853	9.90	370164	10.82	349688	14.15	188213	16.72
JB37249-1	160838	7.70	278635	9.90	389576	10.82	352494	14.15	191622	16.72
ZZZZZZ	150396	7.70	279789	9.90	386310	10.82	341984	14.15	192363	16.72
ZZZZZZ	156834	7.71	285075	9.90	390106	10.82	348723	14.15	194440	16.72
ZZZZZZ	161422	7.71	286457	9.90	392438	10.82	360843	14.15	198985	16.72
ZZZZZZ	160144	7.70	281611	9.90	388752	10.82	357258	14.15	194595	16.72
JB37361-2 ^c	161911	7.70	286001	9.90	392744	10.82	349499	14.15	192163	16.72
JB37361-4	166805	7.73	269800	9.90	374757	10.82	325607	14.15	191299	16.72

- IS 1 = Tert Butyl Alcohol-D9
- IS 2 = Pentafluorobenzene
- IS 3 = 1,4-Difluorobenzene
- IS 4 = Chlorobenzene-D5
- IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.

(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

(c) Dilution required due to matrix interference.

Volatile Internal Standard Area Summary

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Check Std: VE8945-CC8922	Injection Date: 05/23/13
Lab File ID: E203527.D	Injection Time: 12:09
Instrument ID: GCMSE	Method: SW846 8260B

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	97455	7.70	132973	9.90	190826	10.82	175966	14.15	94331	16.72
Upper Limit ^a	194910	8.20	265946	10.40	381652	11.32	351932	14.65	188662	17.22
Lower Limit ^b	48728	7.20	66487	9.40	95413	10.32	87983	13.65	47166	16.22

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VE8945-MB	74571	7.69	136152	9.90	194778	10.82	180820	14.15	100368	16.72
VE8945-BS	89370	7.69	128416	9.91	188046	10.82	173774	14.15	92245	16.72
ZZZZZZ	82218	7.69	136506	9.90	194444	10.82	178355	14.15	99150	16.72
ZZZZZZ	75321	7.69	136569	9.90	194023	10.82	178232	14.15	100755	16.72
ZZZZZZ	79408	7.69	134722	9.90	186594	10.82	170940	14.15	95530	16.72
ZZZZZZ	101074	7.69	142880	9.90	199239	10.82	182136	14.15	98443	16.72
JB37361-4 ^c	99046	7.70	145403	9.91	199308	10.82	179436	14.15	97187	16.72
ZZZZZZ	77025	7.69	142770	9.90	203309	10.82	188767	14.15	101273	16.72
ZZZZZZ	97667	7.69	143560	9.90	195036	10.82	181514	14.15	102044	16.72
JB37127-1MS	77708	7.70	132912	9.90	189663	10.82	171685	14.15	93561	16.72
JB37127-1MSD	77018	7.69	134702	9.90	192090	10.82	174274	14.15	94383	16.72
JB37127-1	85686	7.71	146149	9.90	199165	10.82	175123	14.15	96624	16.72
ZZZZZZ	81428	7.70	146169	9.90	205268	10.82	179984	14.15	94806	16.72
ZZZZZZ	79676	7.69	143457	9.90	203490	10.82	175972	14.15	99931	16.72

- IS 1** = Tert Butyl Alcohol-D9
- IS 2** = Pentafluorobenzene
- IS 3** = 1,4-Difluorobenzene
- IS 4** = Chlorobenzene-D5
- IS 5** = 1,4-Dichlorobenzene-d4

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
 (b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.
 (c) Confirmation run for surrogate recoveries.

Volatile Internal Standard Area Summary

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Check Std:	VI7452-CC7422	Injection Date:	05/21/13
Lab File ID:	I184486.D	Injection Time:	19:42
Instrument ID:	GCMSI	Method:	SW846 8260B

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	69378	7.20	204015	9.44	267830	10.36	214392	13.52	112795	15.89
Upper Limit ^a	138756	7.70	408030	9.94	535660	10.86	428784	14.02	225590	16.39
Lower Limit ^b	34689	6.70	102008	8.94	133915	9.86	107196	13.02	56398	15.39

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VI7452-MB1	48010	7.19	174662	9.44	252217	10.36	197301	13.52	93381	15.89
VI7452-BS	63244	7.19	193007	9.44	256482	10.36	200895	13.52	108184	15.89
JB37477-1MS	57581	7.20	195609	9.44	260842	10.36	207348	13.52	107038	15.89
JB37477-1MSD	64685	7.19	194618	9.44	260105	10.36	206067	13.53	105766	15.89
JB37477-1	54754	7.19	173290	9.44	254742	10.36	200575	13.52	98459	15.89
ZZZZZZ	43006	7.19	170185	9.44	252009	10.36	195003	13.53	92937	15.89
ZZZZZZ	62575	7.18	179844	9.44	265480	10.36	204306	13.52	98115	15.89
ZZZZZZ	58104	7.18	174640	9.44	256045	10.36	197129	13.52	94006	15.89
ZZZZZZ	62595	7.19	176685	9.44	260939	10.36	204786	13.52	99448	15.89
ZZZZZZ	61730	7.19	175749	9.44	259604	10.36	203002	13.53	98931	15.89
JB37361-1	41211	7.18	166562	9.44	243817	10.36	184432	13.53	77808	15.89
JB37361-3	95150	7.18	205654	9.44	301108	10.36	233694	13.53	104023	15.89
ZZZZZZ	66135	7.18	176493	9.44	259332	10.36	202673	13.52	104503	15.89

- IS 1** = Tert Butyl Alcohol-D9
- IS 2** = Pentafluorobenzene
- IS 3** = 1,4-Difluorobenzene
- IS 4** = Chlorobenzene-D5
- IS 5** = 1,4-Dichlorobenzene-d4

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
 (b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

Volatile Surrogate Recovery Summary

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Method: SW846 8260B	Matrix: SO
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Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4
JB37361-1	I184499.D	105.0	112.0	107.0	123.0
JB37361-2	E203518.D	89.0	90.0	89.0	93.0
JB37361-3	I184500.D	109.0	120.0	104.0	120.0
JB37361-4	E203536.D	87.0	84.0	96.0	98.0
JB37361-4	E203519.D	89.0	88.0	144.0* a	129.0
JB37249-1MS	E203506.D	94.0	89.0	91.0	94.0
JB37249-1MSD	E203507.D	94.0	88.0	91.0	93.0
JB37477-1MS	I184490.D	97.0	109.0	104.0	108.0
JB37477-1MSD	I184491.D	97.0	109.0	103.0	109.0
VE8944-BS	E203505.D	96.0	89.0	92.0	95.0
VE8944-MB	E203504.D	89.0	92.0	91.0	91.0
VI7452-BS	I184489.D	97.0	108.0	104.0	105.0
VI7452-MB1	I184488.D	102.0	103.0	104.0	113.0

Surrogate Compounds	Recovery Limits
S1 = Dibromofluoromethane	65-131%
S2 = 1,2-Dichloroethane-D4	70-121%
S3 = Toluene-D8	80-128%
S4 = 4-Bromofluorobenzene	67-131%

(a) Outside control limits due to matrix interference. Confirmed by reanalysis.

6.6.1
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Initial Calibration Summary

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8922-ICC8922
Lab FileID: E202998.D

Response Factor Report MSE

Method : C:\MSDCHEM\1\METHODS\ME8922.M (RTE Integrator)
 Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
 Last Update : Fri May 10 08:11:20 2013
 Response via : Initial Calibration

Calibration Files

5 =E202995.D 2 =E202994.D 20 =E202997.D 50 =E202998.D
 100 =E202999.D 1 =E202993.D 200 =E203000.D 0.5 =E202992.D
 10 =E202996.D =

Compound	5	2	20	50	100	1	200	0.5	10	Avg	%RSD
1) Tert Butyl Alcohol-d9	-----ISTD-----										
2) 1,4-dioxane	0.063		0.090	0.074	0.071		0.070		0.077	0.074	12.31
3) tertiary butyl alcohol	1.153	1.078	1.269	1.154	1.143	1.126	0.952		1.212	1.136	8.24
4) ethanol										0.000#	-1.00
5) I pentafluorobenzene	-----ISTD-----										
6) freon 23										0.000#	-1.00
7) freon 115										0.000#	-1.00
8) freon 143a										0.000#	-1.00
9) freon 152a										0.000#	-1.00
10) chlorotrifluoroethene										0.000#	-1.00
11) chlorodifluoromethane	0.590	0.553	0.727	0.614	0.668	0.717	0.618		0.656	0.643	9.41
12) dichlorodifluoromethane	0.744	0.532	0.770	0.763	0.797	0.687	0.768		0.794	0.732	11.97
13) freon 114										0.000#	-1.00
14) freon 142b										0.000#	-1.00
15) chloromethane	0.912	0.806	0.974	0.899	0.851	0.991	0.801	0.911	0.969	0.902	7.80
16) vinyl chloride	1.029	0.787	1.089	1.016	1.013	1.082	0.952	0.933	1.067	0.996	9.57
17) 1,3-Butadiene										0.000#	-1.00
18) acetaldehyde										0.000#	-1.00
19) bromomethane	0.589	0.593	0.629	0.603	0.617	0.726	0.620		0.631	0.626	6.90
20) chloroethane	0.440	0.380	0.496	0.480	0.510	0.411	0.528		0.486	0.466	11.01
21) vinyl bromide										0.000#	-1.00
22) trichlorofluoromethane	0.924	0.767	1.019	0.977	1.034	1.016	1.029		1.043	0.976	9.53
23) pentane											

6.7.1
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Initial Calibration Summary

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8922-ICC8922
Lab FileID: E202998.D

24)	ethyl ether	0.946	1.022	0.926	0.905	1.079	1.072	1.075	0.949	0.997	7.34
25)	freon 141b	0.304	0.326	0.339	0.314	0.335	0.403	0.340	0.322	0.335	8.97
26)	freon 123a									0.000#	-1.00
27)	freon 123									0.000#	-1.00
28)	2-chloropropane									0.000#	-1.00
29)	acrolein	0.762	0.761	1.021	0.934	0.967		0.913	0.960	0.903	11.31
30)	1,1-dichloroethene	0.119	0.128	0.141	0.120		0.131		0.132	0.128	6.41
31)	isopropyl alcohol	0.374	0.351	0.500	0.451	0.477	0.375	0.453	0.491	0.434	13.51
32)	acetone									0.000#	-1.00
33)	allyl chloride			0.056	0.054	0.053		0.051	0.046	0.052	7.51
34)	acetonitrile	0.917	0.977	0.952	0.831	0.855		0.801	1.045	0.911	9.56
35)	iodomethane	0.034	0.032	0.040	0.037	0.035		0.029	0.038	0.035	9.99
36)	iso-butyl alcohol	0.798	0.704	0.994	0.905	0.958	0.811	0.923	0.951	0.880	11.30
37)	carbon disulfide									0.000#	-1.00
38)	methylene chloride	1.309	1.221	1.757	1.615	1.643	1.494	1.557	1.681	1.535	12.08
39)	1-chloropropane	0.500	0.442	0.584	0.534	0.554	0.552	0.521	0.558	0.531	8.27
40)	methyl acetate	0.940	0.940	1.028	0.924	0.957		0.895	1.076	0.966	6.58
41)	methyl tert butyl ether	0.462	0.450	0.510	0.454	0.466	0.476	0.432	0.466	0.465	4.84
42)	trans-1,2-dichloroethene	1.621	1.347	1.739	1.616	1.661	1.537	1.566	1.683	1.596	7.48
43)	di-isopropyl ether	0.410	0.362	0.529	0.483	0.500	0.488	0.471	0.518	0.470	12.01
44)	ethyl tert-butyl ether	1.791	1.816	1.931	1.717	1.793	2.060	1.639	1.864	1.826	7.06
45)	2-butanone	1.719	1.709	1.875	1.701	1.800	1.853	1.640	1.760	1.738	5.43
46)	1,1-dichloroethane	0.051		0.072	0.064	0.068		0.065	0.061	0.063	11.36
47)	chloroprene	0.818	0.718	1.011	0.927	0.955	0.807	0.906	0.971	0.889	11.16
48)	acrylonitrile	0.707	0.694	0.822	0.724	0.782	0.770	0.716	0.759	0.747	5.85
49)	vinyl acetate	0.216	0.180	0.242	0.227	0.230	0.187	0.219	0.238	0.217	10.44
50)	ethyl acetate	0.075		0.101	0.097	0.105		0.096	0.089	0.094	11.41
51)	2,2-dichloropropane	0.082		0.090	0.084	0.088		0.083	0.088	0.086	3.83
52)	cis-1,2-dichloroethene	0.622	0.597	0.817	0.722	0.750	0.712	0.713	0.778	0.714	10.33
53)	methyl acrylate	0.479	0.452	0.589	0.537	0.554	0.419	0.528	0.562	0.515	11.44

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Initial Calibration Summary

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8922-ICC8922
Lab FileID: E202998.D

	0.516	0.405	0.575	0.533	0.543		0.522	0.561	0.522	10.68	
54)	propionitrile										
	0.090	0.068	0.098	0.089	0.089		0.083	0.095	0.087	11.40	
55)	bromochloromethane										
	0.254	0.198	0.294	0.281	0.290	0.213	0.274	0.287	0.261	14.17	
56)	tetrahydrofuran										
	0.223	0.172	0.238	0.214	0.221		0.207	0.225	0.214	9.80	
57)	chloroform										
	0.796	0.726	0.964	0.889	0.911	0.875	0.855	0.943	0.870	8.97	
58)	t-butyl formate										
	0.462	0.424	0.510	0.488	0.522	0.464	0.493	0.488	0.481	6.40	
59)	Iso-octane										
	1.542	1.723	1.839	1.545	1.771	2.045	1.623	1.600	1.708	1.710	9.42
60)	dibromofluoromethane (s)										
	0.465	0.436	0.492	0.468	0.480		0.467	0.489	0.471	4.00	
61)	1,2-dichloroethane-d4 (s)										
	0.615	0.572	0.652	0.600	0.614	0.644	0.585	0.637	0.615	4.67	
62)	freon 113										
	0.330	0.309	0.399	0.342	0.384	0.339	0.353	0.384	0.355	8.71	
63)	methacrylonitrile										
	0.334	0.282	0.397	0.371	0.379		0.363	0.375	0.357	10.70	
64)	1,1,1-trichloroethane										
	0.617	0.520	0.819	0.753	0.799	0.652	0.755	0.774	0.711	14.62	
65)	tert-amyl methyl ether										
	1.577	1.629	1.674	1.500	1.586	1.784	1.461	1.521	1.592	6.12	
66)	I	1,4-difluorobenzene -----ISTD-----									
67)	Di-isobutylene										
									0.000#	-1.00	
68)	tert amyl alcohol										
	0.021	0.015	0.020	0.017	0.016			0.020	0.018	13.00	
69)	epichlorohydrin										
	0.044	0.039	0.048	0.043	0.043	0.041	0.041	0.047	0.043	7.60	
70)	n-butyl alcohol										
	0.013	0.011	0.015	0.013	0.012	0.013	0.011	0.013	0.013	10.60	
71)	tert-amyl ethyl ether										
	0.559	0.455	0.508	0.475	0.491	0.458	0.467	0.492	0.488	6.99	
72)	carbon tetrachloride										
	0.377	0.343	0.507	0.466	0.487	0.431	0.470	0.483	0.445	12.97	
73)	1,1-dichloropropene										
	0.381	0.354	0.510	0.471	0.482	0.428	0.463	0.505	0.449	12.70	
74)	hexane										
	0.428	0.479	0.509	0.438	0.480	0.580	0.451	0.480	0.481	10.02	
75)	benzene										
	1.216	1.120	1.486	1.336	1.351	1.331	1.287	0.922	1.422	1.275	13.34
76)	heptane										
	0.217	0.245	0.269	0.235	0.261	0.280	0.246	0.250	0.250	7.91	
77)	isopropyl acetate										
	0.853	0.876	0.866	0.767	0.779	0.923	0.733	0.838	0.829	7.71	
78)	1,2-dichloroethane										
	0.505	0.408	0.567	0.520	0.528	0.530	0.509	0.549	0.514	9.24	
79)	ethyl acrylate										
									0.000#	-1.00	
80)	trichloroethene										
	0.291	0.259	0.394	0.362	0.374	0.302	0.364	0.365	0.339	14.21	
81)	2-nitropropane										
									0.000#	-1.00	
82)	2-chloroethyl vinyl ether										
	0.250	0.230	0.273	0.247	0.255	0.257	0.242	0.250	0.251	4.99	
83)	methylcyclohexane										

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Initial Calibration Summary

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8922-ICC8922
Lab FileID: E202998.D

	0.525	0.565	0.621	0.519	0.585	0.674	0.554	0.467	0.590	0.567	10.70
84)	methyl methacrylate										
	0.349	0.299	0.410	0.366	0.389	0.334	0.380		0.383	0.364	9.63
85)	1,2-dichloropropane										
	0.347	0.283	0.410	0.372	0.380	0.343	0.373		0.395	0.363	10.80
86)	dibromomethane										
	0.224	0.174	0.252	0.239	0.243	0.184	0.239		0.238	0.224	13.04
87)	bromodichloromethane										
	0.446	0.369	0.523	0.497	0.510	0.434	0.495		0.495	0.471	10.91
88)	cis-1,3-dichloropropene										
	0.549	0.451	0.641	0.603	0.612	0.496	0.599		0.605	0.569	11.48
89)	toluene-d8 (s)										
	1.251	1.196	1.339	1.227	1.218	1.533	1.192		1.305	1.282	8.86
90)	4-methyl-2-pentanone										
	0.160		0.179	0.168	0.164		0.160		0.172	0.167	4.54
91)	toluene										
	0.751	0.655	0.919	0.837	0.847	0.784	0.831		0.879	0.813	10.09
92)	3-methyl-1-butanol										
	0.022	0.019	0.025	0.021	0.020	0.023	0.018		0.022	0.021	11.48
93)	trans-1,3-dichloropropene										
	0.494	0.394	0.595	0.568	0.574	0.436	0.568		0.553	0.523	14.09
94)	ethyl methacrylate										
	0.460		0.532	0.502	0.512		0.502		0.515	0.504	4.80
95)	1,1,2-trichloroethane										
	0.274	0.214	0.299	0.281	0.285	0.244	0.280		0.281	0.270	10.08
96)	2-hexanone										
	0.141		0.159	0.152	0.154		0.153		0.148	0.151	4.22
97)	I chlorobenzene-d5 -----ISTD-----										
98)	cyclohexanone										
	0.033	0.027	0.025	0.020	0.023	0.022			0.029	0.026	17.00
	----- Linear regression ----- Coefficient = 0.9951										
	Response Ratio = 0.00536 + 0.02199 *A										
99)	tetrachloroethene										
	0.382	0.346	0.491	0.455	0.463	0.429	0.432		0.459	0.432	10.91
100)	1,3-dichloropropane										
	0.581	0.498	0.658	0.607	0.611	0.523	0.571		0.618	0.583	8.97
101)	butyl acetate										
	0.260	0.249	0.288	0.261	0.268	0.269	0.245		0.270	0.264	5.02
102)	3,3-dimethyl-1-butanol										
	0.053	0.050	0.056	0.051	0.046	0.065	0.040		0.054	0.052	14.43
103)	dibromochloromethane										
	0.394	0.323	0.447	0.424	0.442	0.357	0.422		0.430	0.405	10.88
104)	1,2-dibromoethane										
	0.368	0.289	0.405	0.389	0.394	0.325	0.372		0.389	0.366	10.81
105)	n-butyl ether										
										0.000#	-1.00
106)	chlorobenzene										
	0.925	0.788	1.110	1.019	1.041	0.930	0.980	0.672	1.054	0.947	14.71
107)	1,1,1,2-tetrachloroethane										
	0.351	0.303	0.416	0.386	0.406	0.326	0.397		0.403	0.374	11.14
108)	ethylbenzene										
	1.494	1.333	1.848	1.680	1.704	1.604	1.587	1.139	1.775	1.574	14.18
109)	m,p-xylene										
	0.568	0.511	0.718	0.654	0.675	0.642	0.650	0.383	0.695	0.611	17.41
	----- Linear regression ----- Coefficient = 0.9996										
	Response Ratio = 0.01042 + 0.65343 *A										
110)	o-xylene										

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Initial Calibration Summary

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8922-ICC8922
Lab FileID: E202998.D

111)	butyl acrylate	0.587	0.531	0.730	0.683	0.709	0.618	0.692	0.698	0.656	10.63
										0.000#	-1.00
112)	styrene	0.996	0.819	1.230	1.156	1.191	0.932	1.137	1.168	1.079	13.51
113)	bromofom	0.294	0.243	0.337	0.332	0.354	0.242	0.341	0.322	0.308	14.32
114)	I 1,4-dichlorobenzene-d	-----ISTD-----									
115)	isopropylbenzene	2.715	2.473	3.506	3.211	3.187	2.899	2.970	3.293	3.032	11.04
116)	4-bromofluorobenzene (s)	0.927	0.901	1.009	0.938	0.933	1.070	0.904	0.950	0.954	6.06
117)	bromobenzene	0.806	0.704	0.975	0.900	0.913	0.763	0.876	0.936	0.859	10.82
118)	1,1,2,2-tetrachloroethane	0.939	0.781	0.995	0.927	0.911	0.896	0.851	0.685	0.958	10.97
119)	trans-1,4-dichloro-2-butene	0.259	0.201	0.294	0.283	0.286		0.275	0.264	0.266	11.65
120)	1,2,3-trichloropropane	0.259	0.204	0.266	0.254	0.248	0.200	0.236	0.265	0.241	10.83
121)	n-propylbenzene	3.117	2.915	3.996	3.638	3.616	3.253	3.361	3.817	3.464	10.57
122)	p-ethyltoluene	3.419	2.952	3.301	2.979	3.040	3.242	2.703	2.358	3.254	11.00
123)	2-chlorotoluene	0.682	0.605	0.854	0.791	0.812	0.643	0.800	0.807	0.749	12.29
124)	4-chlorotoluene	2.017	1.862	2.460	2.325	2.316	2.046	2.175	2.352	2.194	9.30
125)	1,3,5-trimethylbenzene	2.329	2.119	2.775	2.659	2.607	2.432	2.580	1.891	2.654	11.81
126)	tert-butylbenzene	1.920	1.761	2.512	2.375	2.453	2.181	2.323	2.320	2.231	11.81
127)	pentachloroethane	0.482	0.400	0.558	0.538	0.554	0.430	0.537	0.543	0.505	12.04
128)	1,2,4-trimethylbenzene	2.361	2.189	2.938	2.709	2.722	2.725	2.565	2.770	2.622	9.22
129)	sec-butylbenzene	2.761	2.512	3.676	3.457	3.498	2.984	3.258	3.476	3.202	12.79
130)	1,3-dichlorobenzene	1.450	1.310	1.714	1.632	1.655	1.461	1.572	1.615	1.551	8.61
131)	p-isopropyltoluene	2.339	2.060	3.074	2.890	2.975	2.432	2.795	2.853	2.677	13.33
132)	1,4-dichlorobenzene	1.467	1.270	1.734	1.649	1.691	1.514	1.610	1.126	1.653	13.50
133)	benzyl chloride	1.538	1.369	1.779	1.687	1.774	1.793	1.633	1.169	1.630	13.14
134)	p-diethylbenzene	1.678	1.418	1.752	1.658	1.729	1.498	1.622	1.093	1.663	13.26
135)	1,2-dichlorobenzene	1.386	1.228	1.698	1.613	1.655	1.431	1.566	1.587	1.521	10.43
136)	n-butylbenzene	1.209	1.070	1.612	1.510	1.571		1.510	1.507	1.427	14.30
137)	1,2,4,5-tetramethylbenzene	2.875	2.441	2.847	2.724	2.783	2.477	2.478	1.991	2.736	10.82
138)	1,2-dibromo-3-chloropropane	0.164	0.128	0.197	0.189	0.193		0.180	0.184	0.176	13.46
139)	1,3,5-trichlorobenzene	1.114	0.930	1.423	1.396	1.423	1.169	1.293	1.313	1.257	13.91
140)	1,2,4-trichlorobenzene										

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Initial Calibration Summary

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8922-ICC8922
Lab FileID: E202998.D

141)	hexachlorobutadiene	0.973	0.826	1.248	1.238	1.249	1.145	1.134	1.116	14.43		
142)	naphthalene	0.486	0.479	0.691	0.625	0.644	0.553	0.592	0.654	13.27		
143)	MMT	2.273	2.061	2.663	2.606	2.544	2.489	2.318	2.276	2.460	2.410	7.99
144)	1,2,3-trichlorobenzene										0.000#	-1.00
145)	hexachloroethane	0.866	0.728	1.042	1.031	1.024	0.875	0.960	0.965	0.936	11.50	
146)	Cyclohexane	0.415		0.585	0.562	0.590	0.580	0.528	0.543	12.32		
147)	ethyleinimine	0.804	0.805	1.096	0.973	1.022	0.951	0.940	1.082	0.959	11.57	
											0.000#	-1.00

 (#) = Out of Range ### Number of calibration levels exceeded format ###

ME8922.M

Fri May 10 08:17:34 2013

RPT1

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Initial Calibration Verification

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8922-ICV8922
Lab FileID: E203003.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E203003.D Vial: 13
 Acq On : 9 May 2013 5:59 pm Operator: Oksanat
 Sample : ICV8922-50 Inst : MSE
 Misc : MS47446,VE8922,5,,100,5,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\ME8922.M (RTE Integrator)
 Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
 Last Update : Fri May 10 08:11:20 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	Tert Butyl Alcohol-d9	1.000	1.000	0.0	103	0.00	7.68
2 M	1,4-dioxane	0.074	0.070	5.4	97	0.00	11.54
3 M	tertiary butyl alcohol	1.136	1.141	-0.4	101	0.00	7.80
4	ethanol			-----NA-----			
5 I	pentafluorobenzene	1.000	1.000	0.0	103	0.00	9.91
6	freon 23			-----NA-----			
7	freon 115			-----NA-----			
8	freon 143a			-----NA-----			
9	freon 152a			-----NA-----			
10 M	chlorotrifluoroethene			-----NA-----			
11 M	chlorodifluoromethane	0.643	0.703	-9.3	118	0.00	4.32
12 M	dichlorodifluoromethane	0.732	0.650	11.2	88	0.00	4.31
13	freon 114			-----NA-----			
14	freon 142b			-----NA-----			
15 M	chloromethane	0.902	0.862	4.4	99	0.00	4.67
16 M	vinyl chloride	0.996	0.832	16.5	84	0.00	4.95
17	1,3-Butadiene			-----NA-----			
18 M	acetaldehyde			-----NA-----			
19 M	bromomethane	0.626	0.578	7.7	99	0.00	5.59
20 M	chloroethane	0.466	0.483	-3.6	104	0.00	5.77
21 M	vinyl bromide			-----NA-----			
22 M	trichlorofluoromethane	0.976	0.913	6.5	96	0.00	6.27
23 M	pentane	0.997	0.976	2.1	111	0.00	6.35
24 M	ethyl ether	0.335	0.315	6.0	103	0.00	6.65
25	freon 141b			-----NA-----			
26	freon 123a			-----NA-----			
27	freon 123			-----NA-----			
28 m	2-chloropropane	0.903	0.896	0.8	99	0.00	6.84
29 M	acrolein	0.128	0.130	-1.6	112	0.00	6.86
30 M	1,1-dichloroethene	0.434	0.445	-2.5	102	0.00	7.09
31 M	isopropyl alcohol			-----NA-----			
32 M	acetone	0.052	0.054	-3.8	103	0.00	7.06
33 M	allyl chloride	0.911	0.829	9.0	103	0.00	7.58
34 M	acetonitrile	0.035	0.034	2.9	96	0.00	7.47
35 M	iodomethane	0.880	0.885	-0.6	101	0.00	7.35
36 M	iso-butyl alcohol			-----NA-----			
37 M	carbon disulfide	1.535	1.556	-1.4	99	0.00	7.51
38 M	methylene chloride	0.531	0.510	4.0	98	0.00	7.75
39 m	1-chloropropane	0.966	0.877	9.2	98	0.00	7.81
40 M	methyl acetate	0.465	0.427	8.2	97	0.00	7.53
41 M	methyl tert butyl ether	1.596	1.522	4.7	97	0.00	8.11

Initial Calibration Verification

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8922-ICV8922
Lab FileID: E203003.D

42 M	trans-1,2-dichloroethene	0.470	0.453	3.6	97	0.00	8.15
43 M	di-isopropyl ether	1.826	1.705	6.6	102	0.00	8.69
44 M	ethyl tert-butyl ether	1.738	1.687	2.9	102	0.00	9.15
45 M	2-butanone	0.063	0.065	-3.2	105	0.00	9.34
46 M	1,1-dichloroethane	0.889	0.907	-2.0	101	0.00	8.68
47 M	chloroprene	0.747	0.726	2.8	103	0.00	8.81
48 M	acrylonitrile	0.217	0.213	1.8	96	0.00	8.02
49 M	vinyl acetate	0.094	0.090	4.3	95	0.00	8.65
50 M	ethyl acetate	0.086	0.077	10.5	95	0.00	9.37
51 M	2,2-dichloropropane	0.714	0.662	7.3	94	0.00	9.43
52 M	cis-1,2-dichloroethene	0.515	0.518	-0.6	99	0.00	9.41
53 M	methyl acrylate	0.522	0.506	3.1	98	0.00	9.46
54 M	propionitrile	0.087	0.084	3.4	98	0.00	9.40
55 M	bromochloromethane	0.261	0.267	-2.3	98	0.00	9.71
56 M	tetrahydrofuran	0.214	0.207	3.3	100	0.00	9.77
57 M	chloroform	0.870	0.855	1.7	99	0.00	9.76
58 M	t-butyl formate	0.481	0.499	-3.7	105	0.00	9.80
59 M	Iso-octane	1.710	1.609	5.9	107	0.00	10.52
60 S	dibromofluoromethane (s)	0.471	0.457	3.0	101	0.00	9.95
61 S	1,2-dichloroethane-d4 (s)	0.615	0.579	5.9	99	0.00	10.36
62 M	freon 113	0.355	0.341	3.9	103	0.00	7.07
63 M	methacrylonitrile	0.357	0.346	3.1	96	0.00	9.60
64 M	1,1,1-trichloroethane	0.711	0.734	-3.2	100	0.00	10.05
65 M	tert-amyl methyl ether	1.592	1.521	4.5	104	0.00	10.52
66 I	1,4-difluorobenzene	1.000	1.000	0.0	104	0.00	10.82
67 M	Di-isobutylene			-----NA-----			
68 M	tert amyl alcohol	0.018	0.016	11.1	98	0.00	10.30
69 M	epichlorohydrin	0.043	0.042	2.3	100	0.00	12.06
70 M	n-butyl alcohol	0.013	0.012	7.7	96	0.00	10.90
71 M	tert-amyl ethyl ether	0.488	0.492	-1.4	107	0.00	11.36
72 M	carbon tetrachloride	0.445	0.460	-3.4	102	0.00	10.27
73 M	1,1-dichloropropene	0.449	0.435	3.1	96	0.00	10.22
74 M	hexane	0.481	0.472	1.9	112	0.00	8.48
75 M	benzene	1.275	1.299	-1.9	101	0.00	10.48
76 M	heptane	0.250	0.222	11.2	98	0.00	10.68
77 M	isopropyl acetate	0.829	0.722	12.9	98	0.00	10.36
78 M	1,2-dichloroethane	0.514	0.499	2.9	99	0.00	10.45
79	ethyl acrylate			-----NA-----			
80 M	trichloroethene	0.339	0.358	-5.6	102	0.00	11.19
81 M	2-nitropropane			-----NA-----			
82 M	2-chloroethyl vinyl ether	0.251	0.241	4.0	101	0.00	11.95
83 M	methylcyclohexane	0.567	0.566	0.2	113	0.00	11.45
84 M	methyl methacrylate	0.364	0.369	-1.4	104	0.00	11.43
85 M	1,2-dichloropropane	0.363	0.349	3.9	97	0.00	11.43
86 M	dibromomethane	0.224	0.229	-2.2	99	0.00	11.59
87 M	bromodichloromethane	0.471	0.471	0.0	98	0.00	11.71
88 M	cis-1,3-dichloropropene	0.569	0.531	6.7	91	0.00	12.20
89 S	toluene-d8 (s)	1.282	1.176	8.3	99	0.00	12.52
90 M	4-methyl-2-pentanone	0.167	0.161	3.6	99	0.00	12.27
91 M	toluene	0.813	0.785	3.4	97	0.00	12.60
92 M	3-methyl-1-butanol	0.021	0.020	4.8	98	0.00	12.28
93 M	trans-1,3-dichloropropene	0.523	0.528	-1.0	96	0.00	12.77
94 M	ethyl methacrylate	0.504	0.472	6.3	97	0.00	12.77
95 M	1,1,2-trichloroethane	0.270	0.271	-0.4	100	0.00	13.00
96 M	2-hexanone	0.151	0.147	2.6	100	0.00	13.18
97 I	chlorobenzene-d5	1.000	1.000	0.0	103	0.00	14.15

----- True Calc. % Drift -----

Initial Calibration Verification

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8922-ICV8922
Lab FileID: E203003.D

Sample ID	Compound	500.000	349.989	30.0#	81	0.00	15.34
98 M	cyclohexanone						
		AvgRF	CCRF	% Dev			
99 M	tetrachloroethene	0.432	0.436	-0.9	99	0.00	13.25
100 M	1,3-dichloropropane	0.583	0.584	-0.2	100	0.00	13.20
101 M	butyl acetate	0.264	0.248	6.1	98	0.00	13.27
102 m	3,3-dimethyl-1-butanol	0.052	0.047	9.6	96	0.00	13.36
103 M	dibromochloromethane	0.405	0.408	-0.7	100	0.00	13.49
104 M	1,2-dibromoethane	0.366	0.363	0.8	97	0.00	13.66
105 M	n-butyl ether			NA			
106 M	chlorobenzene	0.947	0.970	-2.4	99	0.00	14.18
107 M	1,1,1,2-tetrachloroethane	0.374	0.365	2.4	98	0.00	14.24
108 M	ethylbenzene	1.574	1.616	-2.7	100	0.00	14.25
		True	Calc.	% Drift			
109 M	m,p-xylene	100.000	95.365	4.6	99	0.00	14.37
		AvgRF	CCRF	% Dev			
110 M	o-xylene	0.656	0.650	0.9	98	0.00	14.83
111 M	butyl acrylate			NA			
112 M	styrene	1.079	1.100	-1.9	98	0.00	14.83
113 M	bromoform	0.308	0.318	-3.2	99	0.00	15.11
114 I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	105	0.00	16.72
115 M	isopropylbenzene	3.032	3.078	-1.5	100	0.00	15.20
116 S	4-bromofluorobenzene (s)	0.954	0.899	5.8	100	0.00	15.42
117 M	bromobenzene	0.859	0.855	0.5	99	0.00	15.65
118 M	1,1,2,2-tetrachloroethane	0.883	0.852	3.5	96	0.00	15.50
119 M	trans-1,4-dichloro-2-bute	0.266	0.263	1.1	97	0.00	15.54
120 M	1,2,3-trichloropropane	0.241	0.238	1.2	98	0.00	15.58
121 M	n-propylbenzene	3.464	3.577	-3.3	103	0.00	15.66
122 M	p-ethyltoluene	3.028	2.905	4.1	102	0.00	15.77
123 M	2-chlorotoluene	0.749	0.751	-0.3	99	0.00	15.82
124 M	4-chlorotoluene	2.194	2.187	0.3	98	0.00	15.92
125 M	1,3,5-trimethylbenzene	2.450	2.519	-2.8	99	0.00	15.82
126 M	tert-butylbenzene	2.231	2.305	-3.3	102	0.00	16.21
127 M	pentachloroethane	0.505	0.512	-1.4	99	0.00	16.30
128 M	1,2,4-trimethylbenzene	2.622	2.579	1.6	100	0.00	16.26
129 M	sec-butylbenzene	3.202	3.294	-2.9	100	0.00	16.45
130 M	1,3-dichlorobenzene	1.551	1.552	-0.1	99	0.00	16.66
131 M	p-isopropyltoluene	2.677	2.871	-7.2	104	0.00	16.58
132 M	1,4-dichlorobenzene	1.524	1.548	-1.6	98	0.00	16.75
133	benzyl chloride	1.597	1.551	2.9	96	0.00	16.86
134 M	p-diethylbenzene	1.568	1.630	-4.0	103	0.00	17.00
135 M	1,2-dichlorobenzene	1.521	1.537	-1.1	100	0.00	17.18
136 M	n-butylbenzene	1.427	1.464	-2.6	101	0.00	17.04
137 M	1,2,4,5-tetramethylbenzen	2.595	2.657	-2.4	102	0.00	17.86
138 M	1,2-dibromo-3-chloropropa	0.176	0.178	-1.1	99	0.00	18.00
139 m	1,3,5-trichlorobenzene	1.257	1.346	-7.1	101	0.00	18.24
140 M	1,2,4-trichlorobenzene	1.116	1.156	-3.6	98	0.00	18.95
141 M	hexachlorobutadiene	0.590	0.616	-4.4	103	0.00	19.10
142 M	naphthalene	2.410	2.386	1.0	96	0.00	19.27
143	MMT			NA			
144 M	1,2,3-trichlorobenzene	0.936	0.971	-3.7	99	0.00	19.54
145 M	hexachloroethane	0.543	0.543	0.0	101	0.00	17.49
146 M	Cyclohexane	0.959	0.979	-2.1	105	0.00	10.16
147	ethyleinimine			NA			

6.7.2

6

Continuing Calibration Summary

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8944-CC8922
Lab FileID: E203502.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E203502.D Vial: 29
 Acq On : 22 May 2013 10:18 pm Operator: Oksanat
 Sample : cc8922-50 Inst : MSE
 Misc : MS48533,VE8944,5,,100,5,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\ME8922.M (RTE Integrator)
 Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
 Last Update : Fri May 10 15:40:15 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	Tert Butyl Alcohol-d9	1.000	1.000	0.0	184	0.01	7.70
2 M	1,4-dioxane	0.074	0.095	-28.4#	237#	0.01	11.55
3 M	tertiary butyl alcohol	1.136	1.301	-14.5	208#	0.01	7.81
4	ethanol			-----NA-----			
5 I	pentafluorobenzene	1.000	1.000	0.0	174	0.00	9.90
6	freon 23			-----NA-----			
7	freon 115			-----NA-----			
8	freon 143a			-----NA-----			
9	freon 152a			-----NA-----			
10 M	chlorotrifluoroethene			-----NA-----			
11 M	chlorodifluoromethane	0.643	0.526	18.2	149	0.00	4.31
12 M	dichlorodifluoromethane	0.732	0.798	-9.0	182	0.00	4.31
13	freon 114			-----NA-----			
14	freon 142b			-----NA-----			
15 M	chloromethane	0.902	0.886	1.8	172	-0.02	4.65
16 M	vinyl chloride	0.996	0.890	10.6	153	-0.03	4.92
17	1,3-Butadiene			-----NA-----			
18 M	acetaldehyde			-----NA-----			
19 M	bromomethane	0.626	0.533	14.9	154	0.00	5.59
20 M	chloroethane	0.466	0.445	4.5	162	0.00	5.77
21 M	vinyl bromide			-----NA-----			
22 M	trichlorofluoromethane	0.976	0.940	3.7	168	0.00	6.27
23 M	pentane			-----NA-----			
24 M	ethyl ether	0.335	0.351	-4.8	195	0.00	6.65
25	freon 141b			-----NA-----			
26	freon 123a			-----NA-----			
27	freon 123			-----NA-----			
28 m	2-chloropropane	0.903	0.965	-6.9	180	0.00	6.84
29 M	acrolein	0.128	0.134	-4.7	196	0.00	6.86
30 M	1,1-dichloroethene	0.434	0.501	-15.4	194	0.00	7.09
31 M	isopropyl alcohol			-----NA-----			
32 M	acetone	0.052	0.064	-23.1#	207#	0.00	7.07
33 M	allyl chloride	0.911	0.917	-0.7	193	0.00	7.58
34 M	acetonitrile	0.035	0.039	-11.4	187	0.02	7.48
35 M	iodomethane	0.880	1.026	-16.6	198	0.00	7.35
36 M	iso-butyl alcohol			-----NA-----			
37 M	carbon disulfide	1.535	1.705	-11.1	184	0.00	7.51
38 M	methylene chloride	0.531	0.591	-11.3	193	0.00	7.75
39 m	1-chloropropane	0.966	0.993	-2.8	188	0.00	7.81
40 M	methyl acetate	0.465	0.507	-9.0	195	0.00	7.54
41 M	methyl tert butyl ether	1.596	1.737	-8.8	187	0.00	8.11

Continuing Calibration Summary

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8944-CC8922
Lab FileID: E203502.D

		True	Calc.	% Drift			
42 M	trans-1,2-dichloroethene	0.470	0.529	-12.6	191	0.00	8.15
43 M	di-isopropyl ether	1.826	1.862	-2.0	189	0.00	8.69
44 M	ethyl tert-butyl ether	1.738	1.894	-9.0	194	0.00	9.15
45 M	2-butanone	0.063	0.083	-31.7#	227#	0.00	9.34
46 M	1,1-dichloroethane	0.889	0.998	-12.3	188	0.00	8.68
47 M	chloroprene	0.747	0.800	-7.1	193	0.00	8.81
48 M	acrylonitrile	0.217	0.255	-17.5	195	0.00	8.02
49 M	vinyl acetate	0.094	0.104	-10.6	186	0.00	8.65
50 M	ethyl acetate	0.086	0.093	-8.1	192	0.01	9.38
51 M	2,2-dichloropropane	0.714	0.719	-0.7	174	0.00	9.43
52 M	cis-1,2-dichloroethene	0.515	0.581	-12.8	189	0.00	9.40
53 m	methyl acrylate	0.522	0.585	-12.1	191	0.00	9.45
54 M	propionitrile	0.087	0.099	-13.8	195	0.00	9.39
55 M	bromochloromethane	0.261	0.316	-21.1#	196	0.00	9.71
56 M	tetrahydrofuran	0.214	0.239	-11.7	195	0.00	9.76
57 M	chloroform	0.870	0.973	-11.8	191	0.00	9.76
58 m	t-butyl formate	0.481	0.572	-18.9	205#	0.00	9.80
59 M	Iso-octane	1.710	1.777	-3.9	201#	0.00	10.52
60 S	dibromofluoromethane (s)	0.471	0.439	6.8	164	0.00	9.95
61 S	1,2-dichloroethane-d4 (s)	0.615	0.542	11.9	158	0.00	10.36
62 M	freon 113	0.355	0.386	-8.7	197	0.00	7.07
63 M	methacrylonitrile	0.357	0.418	-17.1	196	0.00	9.60
64 M	1,1,1-trichloroethane	0.711	0.820	-15.3	190	0.00	10.05
65 M	tert-amyl methyl ether	1.592	1.661	-4.3	193	0.00	10.52
66 I	1,4-difluorobenzene	1.000	1.000	0.0	174	0.00	10.82
67 M	Di-isobutylene			-----NA-----			
68 M	tert amyl alcohol			-----NA-----			
69 M	epichlorohydrin	0.043	0.053	-23.3#	213#	0.00	12.06
70 M	n-butyl alcohol	0.013	0.016	-23.1#	227#	0.01	10.91
71 M	tert-amyl ethyl ether			-----NA-----			
72 M	carbon tetrachloride	0.445	0.512	-15.1	192	0.00	10.27
73 M	1,1-dichloropropene	0.449	0.509	-13.4	188	0.00	10.22
74 M	hexane	0.481	0.471	2.1	188	0.00	8.48
75 M	benzene	1.275	1.437	-12.7	188	0.00	10.47
76 M	heptane	0.250	0.281	-12.4	208#	0.00	10.67
77 M	isopropyl acetate	0.829	0.846	-2.1	192	0.00	10.36
78 M	1,2-dichloroethane	0.514	0.559	-8.8	188	0.00	10.45
79	ethyl acrylate			-----NA-----			
80 M	trichloroethene	0.339	0.395	-16.5	190	0.00	11.19
81 M	2-nitropropane			-----NA-----			
82 M	2-chloroethyl vinyl ether	0.251	0.272	-8.4	191	0.00	11.95
83 M	methylcyclohexane	0.567	0.625	-10.2	210#	0.00	11.45
84 M	methyl methacrylate	0.364	0.427	-17.3	204#	0.00	11.43
85 M	1,2-dichloropropane	0.363	0.414	-14.0	194	0.00	11.43
86 M	dibromomethane	0.224	0.265	-18.3	193	0.00	11.59
87 M	bromodichloromethane	0.471	0.547	-16.1	192	0.00	11.71
88 M	cis-1,3-dichloropropene	0.569	0.681	-19.7	197	0.00	12.19
89 S	toluene-d8 (s)	1.282	1.168	8.9	166	0.00	12.52
90 M	4-methyl-2-pentanone	0.167	0.190	-13.8	197	0.00	12.27
91 M	toluene	0.813	0.926	-13.9	193	0.00	12.60
92 M	3-methyl-1-butanol	0.021	0.026	-23.8#	214#	0.00	12.28
93 M	trans-1,3-dichloropropene	0.523	0.635	-21.4#	195	0.00	12.77
94 M	ethyl methacrylate	0.504	0.565	-12.1	196	0.00	12.77
95 M	1,1,2-trichloroethane	0.270	0.324	-20.0	201#	0.00	13.00
96 M	2-hexanone	0.151	0.179	-18.5	205#	0.00	13.18
97 I	chlorobenzene-d5	1.000	1.000	0.0	176	0.00	14.15
	-----	True	Calc.	% Drift	-----		

6.7.3
6

Continuing Calibration Summary

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8944-CC8922
Lab FileID: E203502.D

ID	Type	Compound	Conc	Area	Time	Count	Offset
98	M	cyclohexanone	500.000	428.405	14.3	168	0.00 15.35
----- AvgRF CCRF % Dev -----							
99	M	tetrachloroethene	0.432	0.469	-8.6	181	0.00 13.25
100	M	1,3-dichloropropane	0.583	0.682	-17.0	198	0.00 13.20
101	M	butyl acetate	0.264	0.306	-15.9	206#	0.00 13.27
102	m	3,3-dimethyl-1-butanol	0.052	0.060	-15.4	208#	0.00 13.36
103	M	dibromochloromethane	0.405	0.485	-19.8	202#	0.00 13.49
104	M	1,2-dibromoethane	0.366	0.446	-21.9#	202#	0.00 13.66
105	M	n-butyl ether					-----NA-----
106	M	chlorobenzene	0.947	1.100	-16.2	190	0.00 14.18
107	M	1,1,1,2-tetrachloroethane	0.374	0.422	-12.8	193	0.00 14.24
108	M	ethylbenzene	1.574	1.765	-12.1	185	0.00 14.25
----- True Calc. % Drift -----							
109	M	m,p-xylene	100.000	106.918	-6.9	190	0.00 14.36
----- AvgRF CCRF % Dev -----							
110	M	o-xylene	0.656	0.733	-11.7	189	0.00 14.82
111	M	butyl acrylate					-----NA-----
112	M	styrene	1.079	1.222	-13.3	186	0.00 14.83
113	M	bromoform	0.308	0.377	-22.4#	200#	0.00 15.11
114	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	175	0.00 16.72
115	M	isopropylbenzene	3.032	3.449	-13.8	188	0.00 15.20
116	S	4-bromofluorobenzene (s)	0.954	0.903	5.3	168	0.00 15.42
117	M	bromobenzene	0.859	0.990	-15.3	192	0.00 15.64
118	M	1,1,2,2-tetrachloroethane	0.883	1.067	-20.8#	201#	0.00 15.50
119	M	trans-1,4-dichloro-2-bute	0.266	0.311	-16.9	192	0.00 15.54
120	M	1,2,3-trichloropropane	0.241	0.289	-19.9	199	0.00 15.58
121	M	n-propylbenzene	3.464	3.851	-11.2	185	0.00 15.66
122	M	p-ethyltoluene					-----NA-----
123	M	2-chlorotoluene	0.749	0.869	-16.0	192	0.00 15.82
124	M	4-chlorotoluene	2.194	2.561	-16.7	192	0.00 15.92
125	M	1,3,5-trimethylbenzene	2.450	2.819	-15.1	185	0.00 15.82
126	M	tert-butylbenzene	2.231	2.573	-15.3	189	0.00 16.21
127	M	pentachloroethane	0.505	0.612	-21.2#	199	0.00 16.30
128	M	1,2,4-trimethylbenzene	2.622	2.854	-8.8	184	0.00 16.26
129	M	sec-butylbenzene	3.202	3.712	-15.9	188	0.00 16.45
130	M	1,3-dichlorobenzene	1.551	1.773	-14.3	190	0.00 16.66
131	M	p-isopropyltoluene	2.677	3.096	-15.7	187	0.00 16.58
132	M	1,4-dichlorobenzene	1.524	1.775	-16.5	188	0.00 16.75
133		benzyl chloride	1.597	1.840	-15.2	191	0.00 16.86
134	M	p-diethylbenzene					-----NA-----
135	M	1,2-dichlorobenzene	1.521	1.784	-17.3	193	0.00 17.18
136	M	n-butylbenzene	1.427	1.625	-13.9	188	0.00 17.04
137	M	1,2,4,5-tetramethylbenzen					-----NA-----
138	M	1,2-dibromo-3-chloropropa	0.176	0.231	-31.3#	213#	0.00 18.00
139	m	1,3,5-trichlorobenzene	1.257	1.509	-20.0#	189	0.00 18.24
140	M	1,2,4-trichlorobenzene	1.116	1.371	-22.8#	193	0.00 18.95
141	M	hexachlorobutadiene	0.590	0.678	-14.9	190	0.00 19.10
142	M	naphthalene	2.410	2.942	-22.1#	197	0.00 19.26
143		MMT					-----NA-----
144	M	1,2,3-trichlorobenzene	0.936	1.159	-23.8#	197	0.00 19.54
145	M	hexachloroethane	0.543	0.644	-18.6	200#	0.00 17.49
146	M	Cyclohexane	0.959	1.106	-15.3	198	0.00 10.16
147		ethyleinimine					-----NA-----

Continuing Calibration Summary

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8944-CC8922
Lab FileID: E203502.D

(#) = Out of Range SPC's out = 0 CCC's out = 0
E202998.D ME8922.M Thu May 23 11:18:08 2013 RPT1

Continuing Calibration Summary

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8945-CC8922
Lab FileID: E203527.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E203527.D Vial: 3
 Acq On : 23 May 2013 12:09 pm Operator: Oksanat
 Sample : cc8922-20 Inst : MSE
 Misc : MS48597,VE8945,5,,100,5,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\ME8922.M (RTE Integrator)
 Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
 Last Update : Fri May 10 15:40:15 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	Tert Butyl Alcohol-d9	1.000	1.000	0.0	103	0.00	7.70
2 M	1,4-dioxane	0.074	0.087	-17.6	99	0.02	11.56
3 M	tertiary butyl alcohol	1.136	1.163	-2.4	94	0.01	7.81
4	ethanol			-----NA-----			
5 I	pentafluorobenzene	1.000	1.000	0.0	93	0.00	9.90
6	freon 23			-----NA-----			
7	freon 115			-----NA-----			
8	freon 143a			-----NA-----			
9	freon 152a			-----NA-----			
10 M	chlorotrifluoroethene			-----NA-----			
11 M	chlorodifluoromethane	0.643	0.512	20.4#	66	0.00	4.31
12 M	dichlorodifluoromethane	0.732	0.699	4.5	85	0.01	4.32
13	freon 114			-----NA-----			
14	freon 142b			-----NA-----			
15 M	chloromethane	0.902	0.852	5.5	81	-0.01	4.66
16 M	vinyl chloride	0.996	0.856	14.1	73	-0.03	4.92
17	1,3-Butadiene			-----NA-----			
18 M	acetaldehyde			-----NA-----			
19 M	bromomethane	0.626	0.478	23.6#	71	0.00	5.59
20 M	chloroethane	0.466	0.394	15.5	74	0.00	5.77
21 M	vinyl bromide			-----NA-----			
22 M	trichlorofluoromethane	0.976	0.860	11.9	79	0.00	6.27
23 M	pentane			-----NA-----			
24 M	ethyl ether	0.335	0.322	3.9	89	0.01	6.65
25	freon 141b			-----NA-----			
26	freon 123a			-----NA-----			
27	freon 123			-----NA-----			
28 m	2-chloropropane	0.903	0.969	-7.3	88	0.00	6.84
29 M	acrolein	0.128	0.143	-11.7	94	0.00	6.86
30 M	1,1-dichloroethene	0.434	0.485	-11.8	90	0.00	7.09
31 M	isopropyl alcohol			-----NA-----			
32 M	acetone	0.052	0.057	-9.6	95	0.02	7.09
33 M	allyl chloride	0.911	1.020	-12.0	100	0.00	7.58
34 M	acetonitrile	0.035	0.042	-20.0	100	0.02	7.49
35 M	iodomethane	0.880	0.882	-0.2	83	0.00	7.35
36 M	iso-butyl alcohol			-----NA-----			
37 M	carbon disulfide	1.535	1.695	-10.4	90	0.00	7.51
38 M	methylene chloride	0.531	0.555	-4.5	89	0.00	7.75
39 m	1-chloropropane	0.966	0.962	0.4	87	0.00	7.81
40 M	methyl acetate	0.465	0.481	-3.4	88	0.01	7.55
41 M	methyl tert butyl ether	1.596	1.643	-2.9	88	0.00	8.11

Continuing Calibration Summary

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8945-CC8922
Lab FileID: E203527.D

		True	Calc.	% Drift			
42 M	trans-1,2-dichloroethene	0.470	0.494	-5.1	87	0.00	8.15
43 M	di-isopropyl ether	1.826	1.853	-1.5	89	0.00	8.69
44 M	ethyl tert-butyl ether	1.738	1.767	-1.7	88	0.00	9.15
45 M	2-butanone	0.063	0.067	-6.3	87	0.00	9.34
46 M	1,1-dichloroethane	0.889	0.963	-8.3	89	0.00	8.69
47 M	chloroprene	0.747	0.755	-1.1	86	0.00	8.81
48 M	acrylonitrile	0.217	0.245	-12.9	94	0.00	8.02
49 M	vinyl acetate	0.094	0.085	9.6	78	0.00	8.66
50 M	ethyl acetate	0.086	0.086	0.0	89	0.01	9.38
51 M	2,2-dichloropropane	0.714	0.779	-9.1	89	0.00	9.43
52 M	cis-1,2-dichloroethene	0.515	0.543	-5.4	86	0.00	9.40
53 M	methyl acrylate	0.522	0.562	-7.7	91	0.00	9.46
54 M	propionitrile	0.087	0.096	-10.3	91	0.00	9.40
55 M	bromochloromethane	0.261	0.266	-1.9	84	0.00	9.71
56 M	tetrahydrofuran	0.214	0.224	-4.7	88	0.01	9.77
57 M	chloroform	0.870	0.887	-2.0	86	0.00	9.76
58 M	t-butyl formate	0.481	0.512	-6.4	94	0.00	9.80
59 M	Iso-octane	1.710	1.893	-10.7	96	0.00	10.52
60 S	dibromofluoromethane (s)	0.471	0.433	8.1	82	0.00	9.95
61 S	1,2-dichloroethane-d4 (s)	0.615	0.537	12.7	77	0.00	10.36
62 M	freon 113	0.355	0.361	-1.7	84	0.00	7.07
63 M	methacrylonitrile	0.357	0.373	-4.5	88	0.00	9.60
64 M	1,1,1-trichloroethane	0.711	0.729	-2.5	83	0.00	10.05
65 M	tert-amyl methyl ether	1.592	1.560	2.0	87	0.00	10.52
66 I	1,4-difluorobenzene	1.000	1.000	0.0	94	0.00	10.82
67 M	Di-isobutylene			-----NA-----			
68 M	tert amyl alcohol			-----NA-----			
69 M	epichlorohydrin	0.043	0.048	-11.6	94	0.00	12.06
70 M	n-butyl alcohol	0.013	0.015	-15.4	95	0.02	10.91
71 M	tert-amyl ethyl ether			-----NA-----			
72 M	carbon tetrachloride	0.445	0.455	-2.2	85	0.00	10.27
73 M	1,1-dichloropropene	0.449	0.469	-4.5	87	0.00	10.22
74 M	hexane	0.481	0.486	-1.0	90	0.00	8.48
75 M	benzene	1.275	1.379	-8.2	88	0.00	10.47
76 M	heptane	0.250	0.282	-12.8	99	0.00	10.68
77 M	isopropyl acetate	0.829	0.780	5.9	85	0.00	10.36
78 M	1,2-dichloroethane	0.514	0.475	7.6	79	0.00	10.45
79	ethyl acrylate			-----NA-----			
80 M	trichloroethene	0.339	0.348	-2.7	83	0.00	11.19
81 M	2-nitropropane			-----NA-----			
82 M	2-chloroethyl vinyl ether	0.251	0.240	4.4	83	0.00	11.95
83 M	methylcyclohexane	0.567	0.616	-8.6	94	0.00	11.45
84 M	methyl methacrylate	0.364	0.390	-7.1	90	0.00	11.43
85 M	1,2-dichloropropane	0.363	0.382	-5.2	88	0.00	11.43
86 M	dibromomethane	0.224	0.216	3.6	81	0.00	11.59
87 M	bromodichloromethane	0.471	0.464	1.5	84	0.00	11.71
88 M	cis-1,3-dichloropropene	0.569	0.604	-6.2	89	0.00	12.20
89 S	toluene-d8 (s)	1.282	1.188	7.3	84	0.00	12.52
90 M	4-methyl-2-pentanone	0.167	0.172	-3.0	91	0.00	12.27
91 M	toluene	0.813	0.840	-3.3	86	0.00	12.60
92 M	3-methyl-1-butanol	0.021	0.024	-14.3	93	0.00	12.28
93 M	trans-1,3-dichloropropene	0.523	0.544	-4.0	86	0.00	12.77
94 M	ethyl methacrylate	0.504	0.485	3.8	86	0.00	12.77
95 M	1,1,2-trichloroethane	0.270	0.274	-1.5	87	0.00	13.00
96 M	2-hexanone	0.151	0.150	0.7	89	0.00	13.18
97 I	chlorobenzene-d5	1.000	1.000	0.0	94	0.00	14.15
	----- True	Calc.	% Drift	-----			

6.7.4
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Continuing Calibration Summary

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VE8945-CC8922
Lab FileID: E203527.D

Sample ID	Sample Name	200.000	616.854	-208.4#	260	0.00	15.34
98 M	cyclohexanone						
		AvgRF	CCRF	% Dev			
99 M	tetrachloroethene	0.432	0.424	1.9	81	0.00	13.25
100 M	1,3-dichloropropane	0.583	0.606	-3.9	87	0.00	13.20
101 M	butyl acetate	0.264	0.282	-6.8	92	0.00	13.27
102 m	3,3-dimethyl-1-butanol	0.052	0.057	-9.6	96	0.00	13.36
103 M	dibromochloromethane	0.405	0.396	2.2	83	0.00	13.49
104 M	1,2-dibromoethane	0.366	0.366	0.0	85	0.00	13.66
105 M	n-butyl ether			NA			
106 M	chlorobenzene	0.947	1.004	-6.0	85	0.00	14.18
107 M	1,1,1,2-tetrachloroethane	0.374	0.376	-0.5	85	0.00	14.24
108 M	ethylbenzene	1.574	1.704	-8.3	87	0.00	14.25
		True	Calc.	% Drift			
109 M	m,p-xylene	40.000	39.283	1.8	86	0.00	14.36
		AvgRF	CCRF	% Dev			
110 M	o-xylene	0.656	0.666	-1.5	86	0.00	14.83
111 M	butyl acrylate			NA			
112 M	styrene	1.079	1.097	-1.7	84	0.00	14.83
113 M	bromoform	0.308	0.295	4.2	82	0.00	15.11
114 I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	93	0.00	16.72
115 M	isopropylbenzene	3.032	3.248	-7.1	86	0.00	15.20
116 S	4-bromofluorobenzene (s)	0.954	0.905	5.1	84	0.00	15.42
117 M	bromobenzene	0.859	0.852	0.8	82	0.00	15.64
118 M	1,1,2,2-tetrachloroethane	0.883	0.923	-4.5	87	0.00	15.50
119 M	trans-1,4-dichloro-2-bute	0.266	0.268	-0.8	85	0.00	15.54
120 M	1,2,3-trichloropropane	0.241	0.243	-0.8	86	0.00	15.58
121 M	n-propylbenzene	3.464	3.664	-5.8	86	0.00	15.66
122 M	p-ethyltoluene			NA			
123 M	2-chlorotoluene	0.749	0.762	-1.7	83	0.00	15.82
124 M	4-chlorotoluene	2.194	2.273	-3.6	86	0.00	15.92
125 M	1,3,5-trimethylbenzene	2.450	2.658	-8.5	89	0.00	15.82
126 M	tert-butylbenzene	2.231	2.357	-5.6	88	0.00	16.21
127 M	pentachloroethane	0.505	0.529	-4.8	88	0.00	16.30
128 M	1,2,4-trimethylbenzene	2.622	2.672	-1.9	85	0.00	16.26
129 M	sec-butylbenzene	3.202	3.387	-5.8	86	0.00	16.45
130 M	1,3-dichlorobenzene	1.551	1.538	0.8	84	0.00	16.66
131 M	p-isopropyltoluene	2.677	2.826	-5.6	86	0.00	16.58
132 M	1,4-dichlorobenzene	1.524	1.538	-0.9	83	0.00	16.75
133	benzyl chloride	1.597	1.871	-17.2	98	0.00	16.86
134 M	p-diethylbenzene			NA			
135 M	1,2-dichlorobenzene	1.521	1.500	1.4	82	0.00	17.18
136 M	n-butylbenzene	1.427	1.416	0.8	82	0.00	17.04
137 M	1,2,4,5-tetramethylbenzen			NA			
138 M	1,2-dibromo-3-chloropropa	0.176	0.182	-3.4	87	0.00	18.00
139 m	1,3,5-trichlorobenzene	1.257	1.290	-2.6	85	0.00	18.24
140 M	1,2,4-trichlorobenzene	1.116	1.144	-2.5	86	0.00	18.95
141 M	hexachlorobutadiene	0.590	0.649	-10.0	88	0.00	19.10
142 M	naphthalene	2.410	2.451	-1.7	86	0.00	19.27
143	MMT			NA			
144 M	1,2,3-trichlorobenzene	0.936	0.985	-5.2	88	0.00	19.54
145 M	hexachloroethane	0.543	0.543	0.0	87	0.00	17.49
146 M	Cyclohexane	0.959	1.061	-10.6	90	0.00	10.16
147	ethyleinimine			NA			

67.4

6

Initial Calibration Summary

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VI7422-ICC7422
Lab FileID: I183734.D

Response Factor Report MSI

Method : C:\MSDCHEM\1\METHODS\MI7422.M (RTE Integrator)
 Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
 Last Update : Mon Apr 29 17:40:31 2013
 Response via : Initial Calibration

Calibration Files

0.5 =I183727.D 1 =I183728.D 2 =I183729.D 5 =I183730.D
 10 =I183731.D 20 =I183735.D 50 =I183734.D 100 =I183733.D
 200 =I183732.D =

Compound	0.5	1	2	5	10	20	50	100	200	Avg	%RSD
1) I Tert Butyl Alcohol-d9 -----ISTD-----											
2) tertiary butyl alcohol		0.110	0.111	0.107	0.106	0.107	0.100	0.097	0.098	0.105	5.29
3) iso-butyl alcohol			0.019	0.022	0.021	0.024	0.023	0.021	0.021	0.022	8.06
4) 1,4-dioxane		0.008	0.008	0.009	0.009	0.009	0.009	0.008	0.008	0.008#	5.35
5) I pentafluorobenzene -----ISTD-----											
6) chlorodifluoromethane		0.403	0.373	0.370	0.379	0.305	0.348	0.348	0.386	0.364	8.27
7) dichlorodifluoromethane		0.440	0.476	0.542	0.548	0.446	0.527	0.542	0.582	0.513	10.17
8) chloromethane		0.524	0.495	0.471	0.464	0.395	0.437	0.452	0.471	0.464	8.24
9) vinyl chloride		0.468	0.535	0.580	0.580	0.491	0.561	0.577	0.608	0.550	8.84
10) bromomethane		0.387	0.340	0.328	0.308	0.295	0.287	0.291	0.299	0.317	10.73
11) chloroethane		0.211	0.241	0.221	0.222	0.206	0.209	0.218	0.225	0.219	5.13
12) trichlorofluoromethane		0.490	0.544	0.591	0.597	0.523	0.579	0.598	0.631	0.569	8.12
13) ethyl ether				0.196	0.187	0.170	0.178	0.174	0.181	0.181	5.15
14) acrolein		0.057	0.054	0.049	0.051	0.045	0.048	0.047	0.049	0.050	7.78
15) freon 113		0.216	0.228	0.258	0.256	0.229	0.253	0.252	0.272	0.245	7.76
16) 1,1-dichloroethene		0.471	0.458	0.459	0.497	0.483	0.446	0.493	0.543	0.485	6.39
17) acetone				0.024	0.028	0.021	0.021	0.022	0.023	0.023	11.06
18) iodomethane		0.539	0.586	0.638	0.635	0.646	0.609	0.665	0.680	0.698	7.78
19) carbon disulfide		1.003	1.102	1.143	1.203	1.183	1.081	1.220	1.324	1.171	8.57
20) methyl acetate			0.037	0.042	0.041	0.040	0.042	0.042	0.044	0.041	5.42
21) allyl chloride		0.172	0.190	0.200	0.199	0.183	0.198	0.205	0.215	0.195	6.74
22) acetonitrile				0.076	0.077	0.049	0.052	0.054	0.056	0.061	20.74
----- Linear regression -----											
----- Coefficient =										0.9982	

Initial Calibration Summary

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VI7422-ICC7422
Lab FileID: I183734.D

$$\text{Response Ratio} = -0.00288 + 0.05593 *A$$

23)	methylene chloride	0.407	0.394	0.353	0.372	0.376	0.390	0.382	4.99
24)	methyl tert butyl ether	0.974	1.004	1.004	0.915	0.950	0.883	0.940	4.30
25)	acrylonitrile	0.071	0.086	0.085	0.080	0.090	0.082	0.085	7.30
26)	trans-1,2-dichloroethene	0.403	0.459	0.415	0.393	0.379	0.337	0.366	8.75
27)	hexane	0.496	0.485	0.456	0.367	0.409	0.406	0.442	10.55
28)	di-isopropyl ether	1.043	1.030	1.045	1.018	1.031	0.926	0.977	4.04
29)	vinyl acetate	0.198	0.202	0.209	0.202	0.180	0.199	0.200	4.37
30)	1,1-dichloroethane	0.537	0.567	0.592	0.634	0.618	0.562	0.607	5.99
31)	chloroprene	0.408	0.397	0.443	0.464	0.485	0.413	0.462	8.11
32)	ethyl tert-butyl ether	1.069	1.061	1.077	1.020	1.061	0.984	1.036	3.18
33)	2-butanone	0.029	0.032	0.029	0.031	0.032	0.034	0.031	6.43
34)	ethyl acetate	0.029	0.037	0.041	0.032	0.032	0.032	0.034	11.77
35)	2,2-dichloropropane	0.575	0.521	0.533	0.531	0.518	0.462	0.513	5.83
36)	cis-1,2-dichloroethene	0.369	0.442	0.418	0.406	0.412	0.377	0.400	5.51
37)	methacrylonitrile	0.119	0.112	0.095	0.109	0.103	0.111	0.111	7.10
38)	propionitrile	0.032	0.031	0.031	0.034	0.032	0.034	0.034	6.03
39)	bromochloromethane	0.169	0.193	0.178	0.185	0.176	0.187	0.189	4.88
40)	tetrahydrofuran	0.108	0.093	0.093	0.078	0.079	0.081	0.083	12.35
41)	chloroform	0.631	0.591	0.635	0.610	0.628	0.579	0.620	4.02
42)	tert-Butyl Formate	0.242	0.256	0.232	0.250	0.230	0.251	0.251	5.32
43)	dibromofluoromethane (s)	0.455	0.365	0.356	0.365	0.375	0.383	10.64	
44)	1,1,1-trichloroethane	0.449	0.521	0.515	0.550	0.535	0.509	0.555	8.26
45)	cyclohexane	0.465	0.450	0.500	0.523	0.500	0.465	0.516	7.93
46) I	1,4-difluorobenzene	-----ISTD-----							
47)	1,2-dichloroethane-d4 (s)	0.318	0.288	0.242	0.235	0.238	0.244	0.261	13.14
48)	carbon tetrachloride	0.253	0.267	0.313	0.320	0.313	0.305	0.336	11.58
49)	1,1-dichloropropene	0.290	0.283	0.313	0.330	0.321	0.299	0.328	7.49
50)	isopropyl acetate	0.068	0.085	0.076	0.081	0.074	0.078	0.077	6.67
51)	benzene	0.971	1.013	0.996	0.999	0.990	0.926	0.994	2.99

Initial Calibration Summary

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VI7422-ICC7422
Lab FileID: I183734.D

52)	2,2,4-trimethylpentane	0.729	0.760	0.827	0.874	0.866	0.754	0.851	0.861	0.925	0.827	7.95
53)	tert-amyl methyl ether	0.662	0.673	0.841	0.666	0.690	0.653	0.688	0.676	0.718	0.696	8.25
54)	1,2-dichloroethane	0.258	0.268	0.272	0.270	0.281	0.266	0.284	0.285	0.299	0.276	4.55
55)	heptane	0.153	0.164	0.173	0.172	0.145	0.160	0.163	0.175		0.163	6.44
56)	n-butyl alcohol	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.006		0.005#	7.78
57)	trichloroethene	0.218	0.225	0.236	0.254	0.250	0.230	0.254	0.259	0.270	0.244	7.15
58)	ethyl acrylate	0.336	0.343	0.295	0.326	0.335	0.362				0.333	6.59
59)	methyl methacrylate	0.111	0.116	0.119	0.123	0.114	0.125	0.127	0.133		0.121	6.20
60)	1,2-dichloropropane	0.234	0.232	0.234	0.238	0.238	0.223	0.238	0.238	0.248	0.236	2.88
61)	methylcyclohexane	0.348	0.348	0.394	0.418	0.417	0.371	0.412	0.414	0.444	0.396	8.48
62)	dibromomethane	0.133	0.138	0.135	0.141	0.132	0.140	0.141	0.146		0.138	3.41
63)	bromodichloromethane	0.257	0.297	0.307	0.308	0.310	0.296	0.317	0.321	0.340	0.306	7.38
64)	2-nitropropane	0.068	0.066	0.060	0.061	0.059	0.063				0.063	6.00
65)	2-chloroethyl vinyl ether	0.083	0.086	0.083	0.090	0.082	0.090	0.088	0.093		0.087	4.81
66)	epichlorohydrin	0.021	0.016	0.015	0.016	0.015	0.015	0.015	0.016		0.016	13.08
67)	cis-1,3-dichloropropene	0.350	0.357	0.383	0.378	0.384	0.361	0.391	0.391	0.408	0.378	4.95
68)	4-methyl-2-pentanone	0.061	0.070	0.065	0.068	0.070	0.074				0.068	6.59
69)	3-methyl-1-butanol	0.004	0.004	0.005	0.004	0.005	0.005	0.005	0.005		0.005#	8.56
70)	toluene	0.915	0.993	1.000	1.019	1.019	0.955	1.028	1.044	1.085	1.006	4.90
71)	trans-1,3-dichloropropene	0.323	0.332	0.326	0.315	0.337	0.309	0.333	0.334	0.351	0.329	3.80
72)	ethyl methacrylate	0.209	0.242	0.242	0.229	0.240	0.232	0.247	0.249	0.262	0.239	6.16
73)	1,1,2-trichloroethane	0.162	0.163	0.156	0.161	0.153	0.158	0.159	0.167		0.160	2.71
74)	2-hexanone	0.055	0.062	0.057	0.061	0.061	0.065				0.060	5.48
75)	I chlorobenzene-d5	-----ISTD-----										
76)	toluene-d8 (s)	1.062	1.126	1.056	1.090	1.139	1.158				1.105	3.81
77)	tetrachloroethene	0.279	0.297	0.311	0.341	0.331	0.313	0.342	0.349	0.361	0.325	8.23
78)	1,3-dichloropropane	0.327	0.361	0.375	0.357	0.375	0.357	0.372	0.369	0.381	0.364	4.42
79)	butyl acetate	0.154	0.133	0.144	0.133	0.140	0.133	0.143			0.140	5.60
80)	3,3-Dimethyl-1-Butanol	0.024	0.021	0.019	0.021	0.020	0.021	0.020	0.022		0.021	7.47
81)	dibromochloromethane	0.244	0.306	0.288	0.283	0.300	0.289	0.308	0.313	0.330	0.296	8.23

6.7.5
6

Initial Calibration Summary

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VI7422-ICC7422
Lab FileID: I183734.D

82)	1,2-dibromoethane	0.230	0.249	0.250	0.238	0.250	0.239	0.253	0.252	0.262	0.247	3.86
83)	chlorobenzene	0.753	0.798	0.836	0.841	0.829	0.795	0.840	0.837	0.867	0.822	4.13
84)	1,1,1,2-tetrachloroethane	0.265	0.286	0.291	0.288	0.300	0.287	0.308	0.311	0.321	0.295	5.67
85)	ethylbenzene	1.337	1.342	1.363	1.395	1.377	1.317	1.404	1.413	1.456	1.378	3.16
86)	m,p-xylene	0.491	0.519	0.531	0.555	0.548	0.519	0.552	0.553	0.562	0.537	4.34
87)	o-xylene	0.513	0.525	0.509	0.535	0.526	0.517	0.543	0.542	0.556	0.529	2.94
88)	styrene	0.774	0.872	0.865	0.891	0.891	0.854	0.915	0.917	0.943	0.880	5.55
89)	bromoform	0.191	0.187	0.180	0.189	0.189	0.200	0.206	0.221	0.196	6.73	
90)	I 1,4-dichlorobenzene-d -----ISTD-----											
91)	4-bromofluorobenzene (s)	0.693	0.729	0.686	0.697	0.729	0.740	0.712	3.18			
92)	isopropylbenzene	2.272	2.345	2.533	2.653	2.562	2.393	2.555	2.593	2.606	2.501	5.26
93)	cyclohexanone										0.000#	-1.00
94)	1,1,2,2-tetrachloroethane	0.606	0.595	0.587	0.553	0.594	0.548	0.565	0.566	0.585	0.578	3.52
95)	trans-1,4-dichloro-2-butene	0.131	0.128	0.124	0.143	0.128	0.134	0.135	0.143	0.133	5.21	
96)	1,2,3-trichloropropane	0.128	0.134	0.120	0.142	0.125	0.131	0.131	0.135	0.131	5.06	
97)	n-propylbenzene	3.076	2.949	3.042	3.145	3.021	2.797	2.987	3.010	3.042	3.008	3.20
98)	bromobenzene	0.654	0.701	0.691	0.695	0.692	0.671	0.701	0.692	0.705	0.689	2.38
99)	2-chlorotoluene	0.638	0.686	0.659	0.667	0.645	0.610	0.638	0.634	0.643	0.647	3.35
100)	4-chlorotoluene	2.234	2.013	2.076	1.976	1.899	1.766	1.865	1.869	1.924	1.958	7.03
101)	1,3,5-trimethylbenzene	2.135	2.107	2.174	2.270	2.229	2.088	2.216	2.238	2.259	2.191	3.08
102)	tert-butylbenzene	1.718	1.819	1.849	1.904	1.878	1.766	1.891	1.916	1.935	1.853	3.93
103)	pentachloroethane	0.406	0.427	0.427	0.435	0.423	0.452	0.461	0.467	0.437	4.76	
104)	1,2,4-trimethylbenzene	2.272	2.197	2.284	2.335	2.263	2.125	2.253	2.264	2.303	2.255	2.72
105)	sec-butylbenzene	2.730	2.594	2.923	2.981	2.908	2.726	2.928	2.964	2.976	2.859	4.88
106)	p-isopropyltoluene	2.282	2.255	2.489	2.545	2.403	2.300	2.427	2.447	2.486	2.404	4.27
107)	benzyl chloride	1.173	1.136	1.115	1.075	1.133	1.008	1.095	1.105	1.199	1.115	5.00
108)	1,3-dichlorobenzene	1.415	1.353	1.420	1.409	1.352	1.291	1.341	1.347	1.382	1.368	3.09
109)	1,4-dichlorobenzene	1.367	1.466	1.412	1.424	1.381	1.316	1.364	1.363	1.401	1.388	3.11
110)	1,2-dichlorobenzene	1.299	1.299	1.300	1.316	1.305	1.252	1.301	1.296	1.306	1.297	1.38
111)	n-butylbenzene	1.202	1.138	1.317	1.382	1.292	1.215	1.316	1.323	1.340	1.281	6.11

6.7.5
6

Initial Calibration Summary

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VI7422-ICC7422
Lab FileID: I183734.D

112)	hexachloroethane	0.494	0.455	0.484	0.466	0.500	0.511	0.514	0.489	4.51
113)	1,2-dibromo-3-chloropropane	0.117	0.131	0.114	0.131	0.122	0.124	0.125	0.120	5.05
114)	1,3,5-Trichlorobenzene	1.082	1.046	1.107	1.153	1.103	1.057	1.112	1.099	3.31
115)	1,2,4-trichlorobenzene	1.000	0.957	0.964	0.945	0.924	0.906	0.950	0.940	4.05
116)	hexachlorobutadiene	0.526	0.616	0.606	0.618	0.600	0.569	0.611	0.599	5.57
117)	naphthalene	2.068	1.910	1.702	1.837	1.872	1.867	1.820	1.646	6.98
118)	1,2,3-trichlorobenzene	0.932	0.862	0.868	0.818	0.827	0.826	0.850	0.810	6.93

(#) = Out of Range ### Number of calibration levels exceeded format ###

MI7422.M

Mon Apr 29 17:42:49 2013

RPT1

6.7.5
6

Initial Calibration Verification

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VI7422-ICV7422
Lab FileID: I183736.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\VI7422\I183736.D Vial: 41
 Acq On : 26 Apr 2013 10:09 pm Operator: SCOTTM
 Sample : ICV7422-50 Inst : MSI
 Misc : MS47200,VI7422,,,,,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\MI7422.M (RTE Integrator)
 Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
 Last Update : Mon Apr 29 11:03:09 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I Tert Butyl Alcohol-d9	1.000	1.000	0.0	97	0.00	7.20
2 tertiary butyl alcohol	0.105	0.105	0.0	102	0.00	7.31
3 iso-butyl alcohol	0.022	0.023	-4.5	98	0.00	9.99
4 1,4-dioxane	0.008	0.010#	-25.0#	106	0.00	11.09
5 I pentafluorobenzene	1.000	1.000	0.0	100	0.00	9.45
6 chlorodifluoromethane	0.364	0.393	-8.0	113	0.00	3.78
7 dichlorodifluoromethane	0.513	0.517	-0.8	98	0.01	3.76
8 chloromethane	0.464	0.432	6.9	99	0.00	4.11
9 vinyl chloride	0.550	0.542	1.5	97	0.00	4.36
10 bromomethane	0.317	0.328	-3.5	114	0.02	5.01
11 chloroethane	0.219	0.223	-1.8	107	0.02	5.19
12 trichlorofluoromethane	0.569	0.580	-1.9	100	0.00	5.63
13 ethyl ether	0.181	0.173	4.4	98	0.00	6.07
14 acrolein	0.050	0.051	-2.0	109	0.00	6.31
15 freon 113	0.245	0.280	-14.3	111	0.00	6.47
16 1,1-dichloroethene	0.485	0.490	-1.0	100	0.00	6.48
17 acetone	0.023	0.021	8.7	98	0.00	6.53
18 iodomethane	0.633	0.665	-5.1	100	0.00	6.76
19 carbon disulfide	1.171	1.203	-2.7	99	0.00	6.88
20 methyl acetate	0.041	0.059	-43.9#	141	0.00	7.02
21 allyl chloride	0.195	0.196	-0.5	99	0.00	7.02
----- True Calc. % Drift -----						
22 acetonitrile	500.000	469.150	6.2	101	0.00	7.02
----- AvgRF CCRF % Dev -----						
23 methylene chloride	0.382	0.368	3.7	99	0.00	7.21
24 methyl tert butyl ether	0.955	0.460	3.8	99	0.00	7.56
25 acrylonitrile	0.084	0.081	3.6	96	0.00	7.54
26 trans-1,2-dichloroethene	0.390	0.362	7.2	99	0.00	7.60
27 hexane	0.437	0.454	-3.9	111	0.00	7.91
28 di-isopropyl ether	1.004	1.012	-0.8	104	0.00	8.17
29 vinyl acetate	0.200	0.194	3.0	98	0.00	8.17
30 1,1-dichloroethane	0.598	0.600	-0.3	99	0.00	8.17
31 chloroprene	0.449	0.475	-5.8	103	0.00	8.28
32 ethyl tert-butyl ether	1.047	1.073	-2.5	104	0.00	8.64
33 2-butanone	0.031	0.030	3.2	97	0.00	8.89
34 ethyl acetate	0.034	0.032	5.9	100	0.00	8.92
35 2,2-dichloropropane	0.527	0.501	4.9	98	0.00	8.92
36 cis-1,2-dichloroethene	0.406	0.396	2.5	99	0.00	8.92
37 methacrylonitrile	0.110	0.105	4.5	96	0.00	9.16

Initial Calibration Verification

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VI7422-ICV7422
Lab FileID: I183736.D

38	propionitrile	0.033	0.032	3.0	97	0.00	8.97
39	bromochloromethane	0.184	0.186	-1.1	100	0.00	9.23
40	tetrahydrofuran	0.088	0.076	13.6	97	0.00	9.27
41	chloroform	0.621	0.615	1.0	99	0.00	9.29
42	tert-Butyl Formate	0.248	0.229	7.7	92	0.00	9.32
43 S	dibromofluoromethane (s)	0.383	0.365	4.7	103	0.00	9.49
44	1,1,1-trichloroethane	0.535	0.542	-1.3	98	0.00	9.54
45	cyclohexane	0.504	0.514	-2.0	100	0.00	9.62
46 I	1,4-difluorobenzene	1.000	1.000	0.0	100	0.00	10.37
47 S	1,2-dichloroethane-d4 (s)	0.261	0.237	9.2	101	0.00	9.91
48	carbon tetrachloride	0.314	0.331	-5.4	99	0.00	9.75
49	1,1-dichloropropene	0.318	0.324	-1.9	99	0.00	9.73
50	isopropyl acetate	0.078	0.078	0.0	100	0.00	9.92
51	benzene	0.992	0.979	1.3	99	0.00	9.99
52	2,2,4-trimethylpentane	0.827	0.939	-13.5	111	0.00	10.00
53	tert-amyl methyl ether	0.696	0.694	0.3	101	0.00	10.03
54	1,2-dichloroethane	0.276	0.277	-0.4	98	0.00	10.00
55	heptane	0.163	0.183	-12.3	115	0.00	10.18
56	n-butyl alcohol	0.005	0.005#	0.0	103	0.00	10.50
57	trichloroethene	0.244	0.251	-2.9	99	0.00	10.71
58	ethyl acrylate	0.333	0.335	-0.6	103	0.00	10.94
59	methyl methacrylate	0.121	0.122	-0.8	98	0.00	10.99
60	1,2-dichloropropane	0.236	0.235	0.4	99	0.00	10.97
61	methylcyclohexane	0.396	0.436	-10.1	106	0.00	10.94
62	dibromomethane	0.138	0.136	1.4	98	0.00	11.13
63	bromodichloromethane	0.306	0.315	-2.9	100	0.00	11.27
64	2-nitropropane	0.063	0.058	7.9	96	0.00	11.48
65	2-chloroethyl vinyl ether	0.087	0.090	-3.4	100	0.00	11.51
66	epichlorohydrin	0.016	0.016	0.0	102	0.00	11.63
67	cis-1,3-dichloropropene	0.378	0.379	-0.3	97	0.00	11.73
68	4-methyl-2-pentanone	0.069	0.067	2.9	98	0.00	11.82
69	3-methyl-1-butanol	0.005	0.005#	0.0	103	0.00	11.85
70	toluene	1.006	1.023	-1.7	100	0.00	12.09
71	trans-1,3-dichloropropene	0.329	0.323	1.8	97	0.00	12.29
72	ethyl methacrylate	0.239	0.243	-1.7	99	0.00	12.29
73	1,1,2-trichloroethane	0.160	0.157	1.9	100	0.00	12.50
74	2-hexanone	0.057	0.057	0.0	95	0.00	12.68
75 I	chlorobenzene-d5	1.000	1.000	0.0	101	0.00	13.54
76 S	toluene-d8 (s)	1.105	1.114	-0.8	103	0.00	12.02
77	tetrachloroethene	0.325	0.337	-3.7	100	0.00	12.68
78	1,3-dichloropropane	0.364	0.359	1.4	98	0.00	12.69
79	butyl acetate	0.140	0.140	0.0	101	0.00	12.76
80	3,3-Dimethyl-1-Butanol	0.021	0.020	4.8	98	0.00	12.86
81	dibromochloromethane	0.296	0.303	-2.4	100	0.00	12.95
82	1,2-dibromoethane	0.247	0.245	0.8	98	0.00	13.10
83	chlorobenzene	0.822	0.821	0.1	99	0.00	13.57
84	1,1,1,2-tetrachloroethane	0.295	0.302	-2.4	99	0.00	13.62
85	ethylbenzene	1.378	1.382	-0.3	99	0.00	13.62
86	m,p-xylene	0.537	0.541	-0.7	99	0.00	13.73
87	o-xylene	0.529	0.530	-0.2	99	0.00	14.15
88	styrene	0.880	0.890	-1.1	98	0.00	14.16
89	bromoform	0.196	0.197	-0.5	99	0.00	14.42
90 I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	101	0.00	15.89
91 S	4-bromofluorobenzene (s)	0.712	0.713	-0.1	103	0.00	14.70
92	isopropylbenzene	2.501	2.514	-0.5	99	0.00	14.49
93	cyclohexanone	0.000	0.012	0.0	0#	0.00	14.65
94	1,1,2,2-tetrachloroethane	0.578	0.547	5.4	97	0.00	14.80

6.7.6
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Initial Calibration Verification

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VI7422-ICV7422
Lab FileID: I183736.D

95	trans-1,4-dichloro-2-bute	0.133	0.126	5.3	95	0.00	14.84
96	1,2,3-trichloropropane	0.131	0.125	4.6	96	0.00	14.87
97	n-propylbenzene	3.008	2.942	2.2	99	0.00	14.91
98	bromobenzene	0.689	0.683	0.9	98	0.00	14.89
99	2-chlorotoluene	0.647	0.626	3.2	99	0.00	15.06
100	4-chlorotoluene	1.958	1.835	6.3	99	0.00	15.16
101	1,3,5-trimethylbenzene	2.191	2.175	0.7	99	0.00	15.06
102	tert-butylbenzene	1.853	1.856	-0.2	99	0.00	15.42
103	pentachloroethane	0.437	0.447	-2.3	99	0.00	15.50
104	1,2,4-trimethylbenzene	2.255	2.202	2.4	98	0.00	15.47
105	sec-butylbenzene	2.859	2.854	0.2	98	0.00	15.65
106	p-isopropyltoluene	2.404	2.370	1.4	98	0.00	15.77
107	benzyl chloride	1.115	1.098	1.5	101	0.00	16.04
108	1,3-dichlorobenzene	1.368	1.322	3.4	99	0.00	15.84
109	1,4-dichlorobenzene	1.388	1.333	4.0	98	0.00	15.92
110	1,2-dichlorobenzene	1.297	1.265	2.5	98	0.00	16.33
111	n-butylbenzene	1.281	1.266	1.2	97	0.00	16.21
112	hexachloroethane	0.487	0.489	-0.4	98	0.00	16.61
113	1,2-dibromo-3-chloropropa	0.123	0.120	2.4	97	0.00	17.15
114	1,3,5-Trichlorobenzene	1.089	1.067	2.0	97	0.00	17.35
115	1,2,4-trichlorobenzene	0.939	0.916	2.4	97	0.00	18.02
116	hexachlorobutadiene	0.588	0.593	-0.9	98	0.00	18.14
117	naphthalene	1.840	1.817	1.3	98	0.00	18.30
118	1,2,3-trichlorobenzene	0.834	0.824	1.2	97	0.00	18.56

(#) = Out of Range
 I183734.D MI7422.M

SPCC's out = 0 CCC's out = 0
 Mon Apr 29 11:06:22 2013 RPT1

Initial Calibration Verification

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VI7422-ICV7422
Lab FileID: I183737.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\VI7422\I183737.D Vial: 44
 Acq On : 26 Apr 2013 11:36 pm Operator: SCOTTM
 Sample : ICV7422-50 (acetates) Inst : MSI
 Misc : MS47200,VI7422,,,,,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\MI7422.M (RTE Integrator)
 Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
 Last Update : Mon Apr 29 11:03:09 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	96	0.00	7.19
2	tertiary butyl alcohol			-----NA-----			
3	iso-butyl alcohol			-----NA-----			
4	1,4-dioxane			-----NA-----			
5 I	pentafluorobenzene	1.000	1.000	0.0	100	0.00	9.45
6	chlorodifluoromethane			-----NA-----			
7	dichlorodifluoromethane			-----NA-----			
8	chloromethane			-----NA-----			
9	vinyl chloride			-----NA-----			
10	bromomethane			-----NA-----			
11	chloroethane			-----NA-----			
12	trichlorofluoromethane			-----NA-----			
13	ethyl ether			-----NA-----			
14	acrolein			-----NA-----			
15	freon 113			-----NA-----			
16	1,1-dichloroethene			-----NA-----			
17	acetone			-----NA-----			
18	iodomethane			-----NA-----			
19	carbon disulfide			-----NA-----			
20	methyl acetate	0.041	0.041	0.0	96	0.00	7.02
21	allyl chloride			-----NA-----			
	----- AvgRF			% Dev			
23	methylene chloride			-----NA-----			
24	methyl tert butyl ether			-----NA-----			
25	acrylonitrile			-----NA-----			
26	trans-1,2-dichloroethene			-----NA-----			
27	hexane			-----NA-----			
28	di-isopropyl ether			-----NA-----			
29	vinyl acetate			-----NA-----			
30	1,1-dichloroethane			-----NA-----			
31	chloroprene			-----NA-----			
32	ethyl tert-butyl ether			-----NA-----			
33	2-butanone			-----NA-----			
34	ethyl acetate			-----NA-----			
35	2,2-dichloropropane			-----NA-----			
36	cis-1,2-dichloroethene			-----NA-----			
37	methacrylonitrile			-----NA-----			
38	propionitrile			-----NA-----			
39	bromochloromethane			-----NA-----			
40	tetrahydrofuran			-----NA-----			

Initial Calibration Verification

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VI7422-ICV7422
Lab FileID: I183737.D

41	chloroform								-----NA-----
43 S	dibromofluoromethane (s)								-----NA-----
44	1,1,1-trichloroethane								-----NA-----
46 I	1,4-difluorobenzene	1.000	1.000	0.0	98	0.00	10.37		
47 s	1,2-dichloroethane-d4 (s)								-----NA-----
48	carbon tetrachloride								-----NA-----
49	1,1-dichloropropene								-----NA-----
50	isopropyl acetate								-----NA-----
51	benzene								-----NA-----
52	2,2,4-trimethylpentane								-----NA-----
53	tert-amyl methyl ether								-----NA-----
54	1,2-dichloroethane								-----NA-----
55	heptane								-----NA-----
56	n-butyl alcohol								-----NA-----
57	trichloroethene								-----NA-----
58	ethyl acrylate								-----NA-----
59	methyl methacrylate								-----NA-----
60	1,2-dichloropropane								-----NA-----
61	methylcyclohexane								-----NA-----
62	dibromomethane								-----NA-----
63	bromodichloromethane								-----NA-----
64	2-nitropropane								-----NA-----
65	2-chloroethyl vinyl ether								-----NA-----
66	epichlorohydrin								-----NA-----
67	cis-1,3-dichloropropene								-----NA-----
68	4-methyl-2-pentanone								-----NA-----
69	3-methyl-1-butanol								-----NA-----
70	toluene								-----NA-----
71	trans-1,3-dichloropropene								-----NA-----
72	ethyl methacrylate								-----NA-----
73	1,1,2-trichloroethane								-----NA-----
74	2-hexanone								-----NA-----
75 I	chlorobenzene-d5	1.000	1.000	0.0	98	0.00	13.54		
76 S	toluene-d8 (s)								-----NA-----
77	tetrachloroethene								-----NA-----
78	1,3-dichloropropane								-----NA-----
79	butyl acetate								-----NA-----
80	3,3-Dimethyl-1-Butanol								-----NA-----
81	dibromochloromethane								-----NA-----
82	1,2-dibromoethane								-----NA-----
83	chlorobenzene								-----NA-----
84	1,1,1,2-tetrachloroethane								-----NA-----
85	ethylbenzene								-----NA-----
86	m,p-xylene								-----NA-----
87	o-xylene								-----NA-----
88	styrene								-----NA-----
89	bromoform								-----NA-----
90 I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	94	0.00	15.89		
91 S	4-bromofluorobenzene (s)								-----NA-----
92	isopropylbenzene								-----NA-----
93	cyclohexanone								-----NA-----
94	1,1,2,2-tetrachloroethane								-----NA-----
95	trans-1,4-dichloro-2-bute								-----NA-----
96	1,2,3-trichloropropane								-----NA-----
97	n-propylbenzene								-----NA-----

6.7.7
6

Initial Calibration Verification

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VI7422-ICV7422
Lab FileID: I183737.D

98	bromobenzene	-----NA-----
99	2-chlorotoluene	-----NA-----
100	4-chlorotoluene	-----NA-----
101	1,3,5-trimethylbenzene	-----NA-----
102	tert-butylbenzene	-----NA-----
103	pentachloroethane	-----NA-----
104	1,2,4-trimethylbenzene	-----NA-----
105	sec-butylbenzene	-----NA-----
106	p-isopropyltoluene	-----NA-----
107	benzyl chloride	-----NA-----
108	1,3-dichlorobenzene	-----NA-----
109	1,4-dichlorobenzene	-----NA-----
110	1,2-dichlorobenzene	-----NA-----
111	n-butylbenzene	-----NA-----
112	hexachloroethane	-----NA-----
113	1,2-dibromo-3-chloropropa	-----NA-----
114	1,3,5-Trichlorobenzene	-----NA-----
115	1,2,4-trichlorobenzene	-----NA-----
116	hexachlorobutadiene	-----NA-----
117	naphthalene	-----NA-----
118	1,2,3-trichlorobenzene	-----NA-----

(#) = Out of Range
I183734.D MI7422.M

SPCC's out = 0 CCC's out = 0
Mon Apr 29 11:07:02 2013 RPT1

Continuing Calibration Summary

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VI7452-CC7422
Lab FileID: I184486.D

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\VI7452\I184486.D Vial: 20
 Acq On : 21 May 2013 7:42 pm Operator: SCOTTM
 Sample : CC7422-50 Inst : MSI
 Misc : MS48651,VI7452,,,,,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\MI7422.M (RTE Integrator)
 Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
 Last Update : Tue May 21 17:53:40 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	Tert Butyl Alcohol-d9	1.000	1.000	0.0	86	0.00	7.20
2	tertiary butyl alcohol	0.105	0.101	3.8	88	0.00	7.31
3	iso-butyl alcohol	0.022	0.032	-45.5#	120	0.00	9.98
4	1,4-dioxane	0.008	0.008#	0.0	79	0.00	11.08
5 I	pentafluorobenzene	1.000	1.000	0.0	83	-0.01	9.44
6	chlorodifluoromethane	0.364	0.397	-9.1	95	0.00	3.78
7	dichlorodifluoromethane	0.513	0.561	-9.4	89	0.00	3.75
8	chloromethane	0.464	0.486	-4.7	93	0.00	4.11
9	vinyl chloride	0.550	0.523	4.9	78	0.01	4.36
10	bromomethane	0.317	0.325	-2.5	94	0.00	4.99
11	chloroethane	0.219	0.226	-3.2	90	0.00	5.18
12	trichlorofluoromethane	0.569	0.698	-22.7#	100	0.00	5.64
13	ethyl ether	0.181	0.167	7.7	78	0.00	6.07
14	acrolein	0.050	0.049	2.0	86	0.00	6.31
15	freon 113	0.245	0.215	12.2	71	0.00	6.46
16	1,1-dichloroethene	0.485	0.520	-7.2	88	0.00	6.48
17	acetone	0.023	0.021	8.7	81	0.00	6.54
18	iodomethane	0.633	0.620	2.1	78	0.00	6.75
19	carbon disulfide	1.171	1.113	5.0	76	0.00	6.88
20	methyl acetate	0.041	0.039	4.9	76	0.00	7.01
21	allyl chloride	0.195	0.184	5.6	78	0.00	7.01
----- True Calc. % Drift -----							
22	acetonitrile	500.000	474.142	5.2	84	0.00	7.01
----- AvgRF CCRF % Dev -----							
23	methylene chloride	0.382	0.351	8.1	79	0.00	7.21
24	methyl tert butyl ether	0.955	0.925	3.1	82	0.00	7.56
25	acrylonitrile	0.084	0.087	-3.6	84	-0.01	7.53
26	trans-1,2-dichloroethene	0.390	0.347	11.0	79	0.00	7.59
27	hexane	0.437	0.371	15.1	75	0.00	7.91
28	di-isopropyl ether	1.004	0.869	13.4	74	0.00	8.16
29	vinyl acetate	0.200	0.202	-1.0	85	0.00	8.16
30	1,1-dichloroethane	0.598	0.616	-3.0	84	0.00	8.16
31	chloroprene	0.449	0.441	1.8	79	0.00	8.27
32	ethyl tert-butyl ether	1.047	0.970	7.4	78	0.00	8.63
33	2-butanone	0.031	0.030	3.2	82	0.00	8.88
34	ethyl acetate	0.034	0.029	14.7	76	0.00	8.91
35	2,2-dichloropropane	0.527	0.571	-8.3	93	0.00	8.91
36	cis-1,2-dichloroethene	0.406	0.378	6.9	78	-0.01	8.91
37	methacrylonitrile	0.110	0.104	5.5	79	0.00	9.16

Continuing Calibration Summary

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VI7452-CC7422
Lab FileID: I184486.D

38	propionitrile	0.033	0.034	-3.0	83	-0.01	8.96
39	bromochloromethane	0.184	0.180	2.2	80	0.00	9.22
40	tetrahydrofuran	0.088	0.081	8.0	85	0.00	9.27
41	chloroform	0.621	0.648	-4.3	87	0.00	9.28
42	tert-Butyl Formate	0.248	0.263	-6.0	87	0.00	9.32
43 S	dibromofluoromethane (s)	0.382	0.367	3.9	86	0.00	9.48
44	1,1,1-trichloroethane	0.535	0.602	-12.5	90	-0.01	9.53
45	cyclohexane	0.504	0.475	5.8	76	0.00	9.61
46 I	1,4-difluorobenzene	1.000	1.000	0.0	76	0.00	10.36
47 S	1,2-dichloroethane-d4 (s)	0.260	0.283	-8.8	91	0.00	9.90
48	carbon tetrachloride	0.314	0.417	-32.8#	94	0.00	9.74
49	1,1-dichloropropene	0.318	0.364	-14.5	84	0.00	9.72
50	isopropyl acetate	0.078	0.079	-1.3	76	0.00	9.92
51	benzene	0.992	1.015	-2.3	77	-0.01	9.98
52	2,2,4-trimethylpentane	0.827	0.798	3.5	71	0.00	9.99
53	tert-amyl methyl ether	0.696	0.712	-2.3	78	0.00	10.03
54	1,2-dichloroethane	0.276	0.362	-31.2#	97	0.00	9.99
55	heptane	0.163	0.009#	94.5#	4#	-0.01	10.17
56	n-butyl alcohol	0.005	0.006#	-20.0	82	-0.01	10.49
57	trichloroethene	0.244	0.271	-11.1	81	0.00	10.71
58	ethyl acrylate	0.333	0.333	0.0	77	0.00	10.93
59	methyl methacrylate	0.121	0.129	-6.6	78	0.00	10.98
60	1,2-dichloropropane	0.236	0.246	-4.2	78	0.00	10.97
61	methylcyclohexane	0.396	0.396	0.0	73	0.00	10.93
62	dibromomethane	0.138	0.157	-13.8	85	0.00	11.12
63	bromodichloromethane	0.306	0.371	-21.2#	89	-0.01	11.25
64	2-nitropropane	0.063	0.080	-27.0#	100	-0.01	11.47
65	2-chloroethyl vinyl ether	0.087	0.099	-13.8	83	0.00	11.51
66	epichlorohydrin	0.016	0.017	-6.3	81	0.00	11.62
67	cis-1,3-dichloropropene	0.378	0.424	-12.2	82	0.00	11.72
68	4-methyl-2-pentanone	0.068	0.073	-7.4	81	0.00	11.82
69	3-methyl-1-butanol	0.005	0.005#	0.0	85	0.00	11.85
70	toluene	1.006	1.061	-5.5	78	0.00	12.09
71	trans-1,3-dichloropropene	0.329	0.388	-17.9	88	0.00	12.29
72	ethyl methacrylate	0.239	0.259	-8.4	80	0.00	12.29
73	1,1,2-trichloroethane	0.160	0.168	-5.0	81	0.00	12.50
74	2-hexanone	0.060	0.066	-10.0	82	0.00	12.68
75 I	chlorobenzene-d5	1.000	1.000	0.0	77	-0.01	13.52
76 S	toluene-d8 (s)	1.114	1.140	-2.3	81	0.00	12.01
77	tetrachloroethene	0.325	0.341	-4.9	77	0.00	12.68
78	1,3-dichloropropane	0.364	0.401	-10.2	83	-0.01	12.68
79	butyl acetate	0.140	0.144	-2.9	80	0.00	12.76
80	3,3-Dimethyl-1-Butanol	0.021	0.022	-4.8	81	0.00	12.85
81	dibromochloromethane	0.296	0.347	-17.2	87	0.00	12.94
82	1,2-dibromoethane	0.247	0.264	-6.9	81	-0.01	13.09
83	chlorobenzene	0.822	0.862	-4.9	79	0.00	13.56
84	1,1,1,2-tetrachloroethane	0.295	0.332	-12.5	83	0.00	13.62
85	ethylbenzene	1.378	1.459	-5.9	80	0.00	13.62
86	m,p-xylene	0.537	0.556	-3.5	78	0.00	13.72
87	o-xylene	0.529	0.542	-2.5	77	0.00	14.14
88	styrene	0.880	0.913	-3.8	77	0.00	14.15
89	bromoform	0.196	0.219	-11.7	85	0.00	14.41
90 I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	75	0.00	15.89
91 S	4-bromofluorobenzene (s)	0.718	0.777	-8.2	83	0.00	14.69
92	isopropylbenzene	2.501	2.701	-8.0	79	0.00	14.49
93	cyclohexanone	0.000	0.014	0.0	0#	0.00	14.64
94	1,1,1,2,2-tetrachloroethane	0.578	0.609	-5.4	80	-0.01	14.79

Continuing Calibration Summary

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: VI7452-CC7422
Lab FileID: I184486.D

95	trans-1,4-dichloro-2-bute	0.133	0.169	-27.1#	94	0.00	14.84
96	1,2,3-trichloropropane	0.131	0.154	-17.6	88	-0.01	14.86
97	n-propylbenzene	3.008	3.200	-6.4	80	-0.01	14.90
98	bromobenzene	0.689	0.723	-4.9	77	0.00	14.88
99	2-chlorotoluene	0.647	0.672	-3.9	79	0.00	15.05
100	4-chlorotoluene	1.958	2.060	-5.2	82	-0.01	15.15
101	1,3,5-trimethylbenzene	2.191	2.399	-9.5	81	0.00	15.06
102	tert-butylbenzene	1.853	1.950	-5.2	77	-0.01	15.41
103	pentachloroethane	0.437	0.488	-11.7	81	0.00	15.50
104	1,2,4-trimethylbenzene	2.255	2.441	-8.2	81	-0.01	15.46
105	sec-butylbenzene	2.859	3.039	-6.3	77	0.00	15.64
106	p-isopropyltoluene	2.404	2.576	-7.2	79	0.00	15.76
107	benzyl chloride	1.115	1.308	-17.3	89	0.00	16.04
108	1,3-dichlorobenzene	1.368	1.385	-1.2	77	-0.01	15.83
109	1,4-dichlorobenzene	1.388	1.410	-1.6	77	0.00	15.91
110	1,2-dichlorobenzene	1.297	1.339	-3.2	77	0.00	16.33
111	n-butylbenzene	1.281	1.343	-4.8	76	0.00	16.20
112	hexachloroethane	0.489	0.536	-9.6	80	0.00	16.61
113	1,2-dibromo-3-chloropropa	0.123	0.129	-4.9	77	-0.01	17.14
114	1,3,5-Trichlorobenzene	1.089	1.094	-0.5	73	-0.01	17.35
115	1,2,4-trichlorobenzene	0.939	0.940	-0.1	74	0.00	18.01
116	hexachlorobutadiene	0.588	0.618	-5.1	75	0.00	18.14
117	naphthalene	1.840	1.925	-4.6	77	0.00	18.29
118	1,2,3-trichlorobenzene	0.834	0.852	-2.2	75	0.00	18.55

(#) = Out of Range
 I183734.D MI7422.M

SPCC's out = 0 CCC's out = 0
 Wed May 22 09:18:54 2013 RPT1

GC/MS Volatiles

Raw Data

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI7452\
Data File : I184499.D
Acq On : 22 May 2013 2:28 am
Operator : SCOTTM
Sample : JB37361-1,VSL
Misc : MS48597,VI7452,5.7,,,,,1
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 22 10:41:05 2013
Quant Method : C:\MSDCHEM\1\METHODS\MI7422.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue May 21 17:53:40 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.180	65	41211	50.00	ug/L	-0.02
5) pentafluorobenzene	9.440	168	166562	50.00	ug/L	-0.01
46) 1,4-difluorobenzene	10.360	114	243817	50.00	ug/L	0.00
75) chlorobenzene-d5	13.530	117	184432	50.00	ug/L	0.00
90) 1,4-dichlorobenzene-d4	15.889	152	77808	50.00	ug/L	0.00

System Monitoring Compounds

43) dibromofluoromethane (s)	9.476	113	67078	52.69	ug/L	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	105.38%
47) 1,2-dichloroethane-d4...	9.900	65	71280	56.18	ug/L	0.00
Spiked Amount	50.000	Range	70 - 122	Recovery	=	112.36%
76) toluene-d8 (s)	12.013	98	219571	53.41	ug/L	0.00
Spiked Amount	50.000	Range	81 - 127	Recovery	=	106.82%
91) 4-bromofluorobenzene (s)	14.691	95	68963	61.71	ug/L	0.00
Spiked Amount	50.000	Range	66 - 132	Recovery	=	123.42%

Target Compounds Qvalue

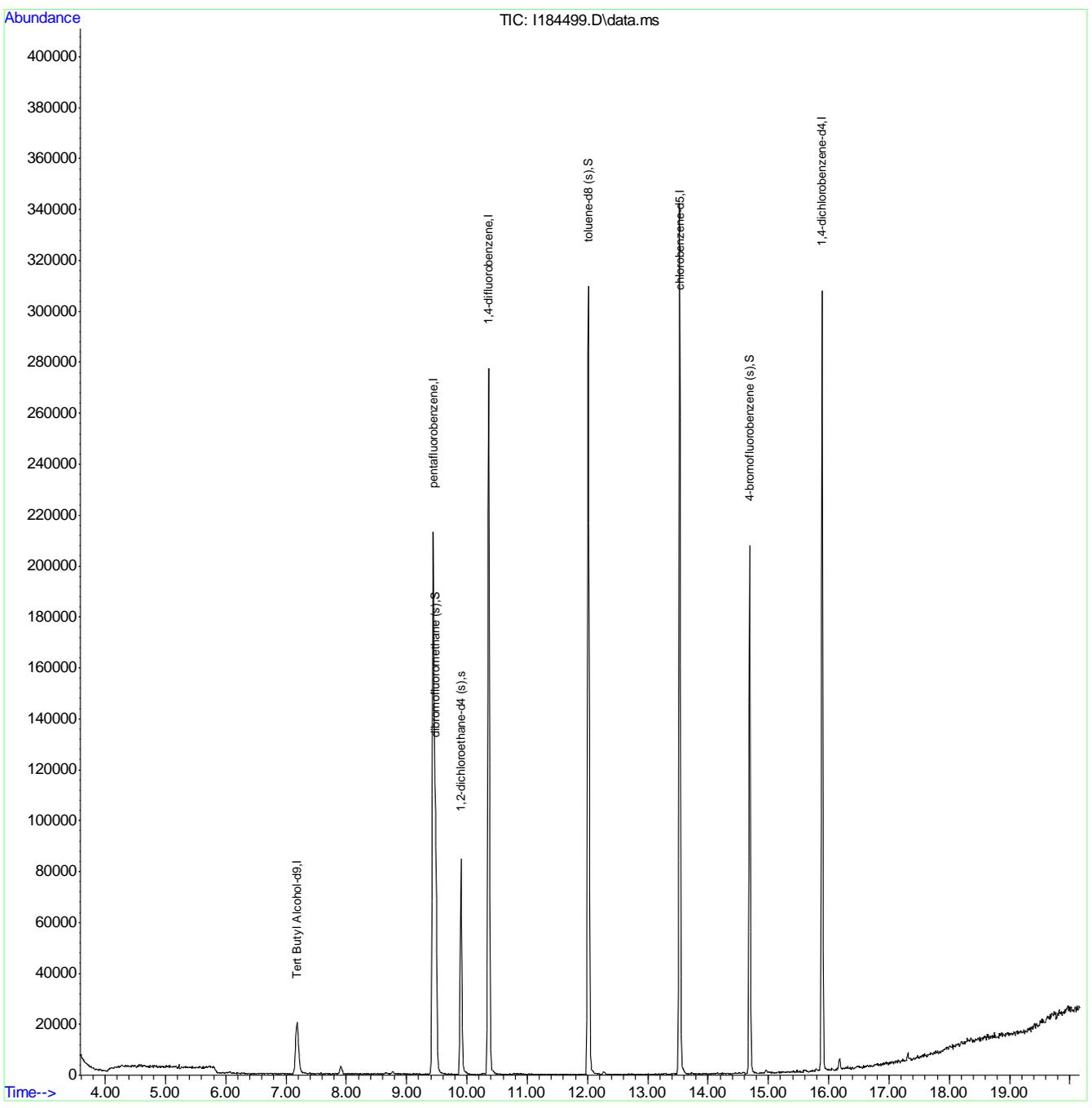
(#) = qualifier out of range (m) = manual integration (+) = signals summed

7.1.1
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI7452\
Data File : I184499.D
Acq On : 22 May 2013 2:28 am
Operator : SCOTTM
Sample : JB37361-1,VSL
Misc : MS48597,VI7452,5.7,,,,,1
ALS Vial : 34 Sample Multiplier: 1

Quant Time: May 22 10:41:05 2013
Quant Method : C:\MSDCHEM\1\METHODS\MI7422.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue May 21 17:53:40 2013
Response via : Initial Calibration



LSC Area Percent Report

Data Path : C:\msdchem\1\DATA\VI7452\
Data File : I184499.D
Acq On : 22 May 2013 2:28 am
Operator : SCOTTM
Sample : JB37361-1,VSL
Misc : MS48597,VI7452,5.7,,,,,1
ALS Vial : 34 Sample Multiplier: 1

Integration Parameters: RTEINT.P
Integrator: RTE
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 10 Area counts
Start Thrs: 0.05 Max Peaks: 100
Stop Thrs : 0.01 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

Method : C:\MSDCHEM\1\METHODS\MI7422.M
Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um

Signal : TIC: I18449

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	4.095	87	98	100	rBV4	1447	3980	0.57%	0.112%
2	4.748	222	223	227	rVB4	980	876	0.13%	0.025%
3	5.972	456	457	460	rBV2	476	334	0.05%	0.009%
4	5.998	460	462	468	rVB3	395	570	0.08%	0.016%
5	6.061	468	474	475	rBV3	593	750	0.11%	0.021%
6	6.192	498	499	502	rBV	485	389	0.06%	0.011%
7	6.422	540	543	545	rBV2	340	340	0.05%	0.010%
8	6.574	567	572	576	rBV3	445	875	0.13%	0.025%
9	6.877	627	630	632	rVB2	387	337	0.05%	0.009%
10	6.893	632	633	636	rBV2	430	442	0.06%	0.012%
11	6.924	638	639	648	rVB2	430	694	0.10%	0.019%
12	7.055	661	664	670	rVB2	492	838	0.12%	0.024%
13	7.180	674	688	707	rBV3	20382	76208	11.00%	2.140%
14	7.463	741	742	747	rVB2	450	488	0.07%	0.014%
15	7.526	747	754	758	rBV3	463	965	0.14%	0.027%
16	7.667	776	781	788	rBV3	411	826	0.12%	0.023%
17	7.808	807	808	813	rBV2	517	512	0.07%	0.014%
18	7.907	817	827	837	rVV4	3083	7898	1.14%	0.222%
19	8.023	848	849	854	rBV2	544	588	0.08%	0.017%
20	8.090	858	862	866	rVB2	349	421	0.06%	0.012%
21	8.457	931	932	938	rVB2	482	632	0.09%	0.018%
22	8.504	938	941	947	rBV2	432	600	0.09%	0.017%
23	8.551	947	950	956	rVB2	309	510	0.07%	0.014%
24	8.624	962	964	965	rBV2	494	347	0.05%	0.010%
25	8.650	965	969	971	rBV2	452	537	0.08%	0.015%
26	8.770	984	992	998	rBV4	954	2241	0.32%	0.063%
27	8.980	1029	1032	1034	rBV	435	347	0.05%	0.010%
28	9.121	1050	1059	1063	rVB2	343	692	0.10%	0.019%
29	9.205	1072	1075	1079	rVB	418	488	0.07%	0.014%
30	9.440	1107	1120	1154	rBV2	212968	692578	100.00%	19.449%
31	9.701	1166	1170	1173	rVB2	414	379	0.05%	0.011%
32	9.733	1173	1176	1181	rBV3	390	457	0.07%	0.013%
33	9.801	1186	1189	1197	rBV2	235	374	0.05%	0.011%
34	9.900	1197	1208	1227	rBV	84707	180067	26.00%	5.057%

7.12
7

LSC Area Percent Report

Data Path : C:\msdchem\1\DATA\VI7452\
Data File : I184499.D
Acq On : 22 May 2013 2:28 am
Operator : SCOTTM
Sample : JB37361-1,VSL
Misc : MS48597,VI7452,5.7,,,,,1
ALS Vial : 34 Sample Multiplier: 1

Integration Parameters: RTEINT.P
Integrator: RTE
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 10 Area counts
Start Thrs: 0.05 Max Peaks: 100
Stop Thrs : 0.01 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

Method : C:\MSDCHEM\1\METHODS\MI7422.M
Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um

35	10.125	1249	1251	1256	rBV2	414	580	0.08%	0.016%
36	10.214	1262	1268	1269	rVV	354	517	0.07%	0.015%
37	10.251	1272	1275	1276	rVV2	454	433	0.06%	0.012%
38	10.282	1277	1281	1284	rVV3	475	764	0.11%	0.021%
39	10.360	1286	1296	1322	rVB	277335	558334	80.62%	15.679%
40	10.711	1358	1363	1368	rBV2	518	999	0.14%	0.028%
41	10.768	1372	1374	1378	rBV2	564	680	0.10%	0.019%
42	10.800	1378	1380	1384	rVV2	474	731	0.11%	0.021%
43	10.836	1385	1387	1392	rVV3	456	740	0.11%	0.021%
44	10.878	1392	1395	1397	rVV2	408	504	0.07%	0.014%
45	10.910	1397	1401	1403	rVV3	436	528	0.08%	0.015%
46	10.936	1403	1406	1408	rVV2	415	363	0.05%	0.010%
47	11.030	1421	1424	1427	rVV2	378	456	0.07%	0.013%
48	11.077	1428	1433	1436	rVV2	482	633	0.09%	0.018%
49	11.511	1515	1516	1521	rBV2	359	390	0.06%	0.011%
50	11.616	1534	1536	1539	rBV	365	349	0.05%	0.010%
51	11.705	1551	1553	1559	rBV2	251	376	0.05%	0.011%
52	11.846	1574	1580	1583	rBV2	315	447	0.06%	0.013%
53	12.013	1603	1612	1634	rBV	309599	565665	81.68%	15.885%
54	12.264	1654	1660	1675	rVB3	1136	3041	0.44%	0.085%
55	12.578	1718	1720	1724	rVV2	271	375	0.05%	0.011%
56	12.667	1731	1737	1739	rBV3	326	648	0.09%	0.018%
57	12.813	1761	1765	1767	rBV	291	351	0.05%	0.010%
58	12.902	1780	1782	1787	rVB2	294	365	0.05%	0.010%
59	13.075	1806	1815	1816	rBV2	300	718	0.10%	0.020%
60	13.127	1821	1825	1831	rVB3	251	418	0.06%	0.012%
61	13.295	1846	1857	1864	rBV3	610	1831	0.26%	0.051%
62	13.347	1864	1867	1873	rVB4	232	380	0.05%	0.011%
63	13.415	1876	1880	1887	rBV4	557	1196	0.17%	0.034%
64	13.467	1887	1890	1893	rBV2	434	360	0.05%	0.010%
65	13.525	1893	1901	1925	rBV	342250	576553	83.25%	16.191%
66	13.723	1937	1939	1946	rBV4	644	891	0.13%	0.025%
67	13.812	1951	1956	1958	rBV	507	556	0.08%	0.016%
68	13.849	1958	1963	1965	rVB3	269	361	0.05%	0.010%
69	13.907	1970	1974	1978	rBV3	551	754	0.11%	0.021%
70	14.074	2001	2006	2009	rBV3	295	440	0.06%	0.012%
71	14.158	2019	2022	2025	rVB2	478	482	0.07%	0.014%

7.12
7

LSC Area Percent Report

Data Path : C:\msdchem\1\DATA\VI7452\
Data File : I184499.D
Acq On : 22 May 2013 2:28 am
Operator : SCOTTM
Sample : JB37361-1,VSL
Misc : MS48597,VI7452,5.7,,,,1
ALS Vial : 34 Sample Multiplier: 1

Integration Parameters: RTEINT.P
Integrator: RTE
Smoothing : ON Filtering: 5
Sampling : 1 Min Area: 10 Area counts
Start Thrs: 0.05 Max Peaks: 100
Stop Thrs : 0.01 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
Peak separation: 5

Method : C:\MSDCHEM\1\METHODS\MI7422.M
Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um

72	14.231	2033	2036	2040	rVB3	459	379	0.05%	0.011%
73	14.325	2052	2054	2058	rVB2	346	366	0.05%	0.010%
74	14.450	2076	2078	2081	rVB4	470	368	0.05%	0.010%
75	14.566	2098	2100	2111	rVB4	600	1390	0.20%	0.039%
76	14.691	2111	2124	2137	rBV	207686	338781	48.92%	9.514%
77	14.858	2154	2156	2159	rBV3	500	408	0.06%	0.011%
78	14.885	2159	2161	2165	rVV2	489	555	0.08%	0.016%
79	14.921	2165	2168	2170	rVV3	565	485	0.07%	0.014%
80	14.963	2170	2176	2181	rVV6	1555	2580	0.37%	0.072%
81	15.000	2181	2183	2185	rVV2	537	391	0.06%	0.011%
82	15.026	2185	2188	2190	rVV2	519	484	0.07%	0.014%
83	15.162	2208	2214	2217	rBV5	751	1023	0.15%	0.029%
84	15.188	2217	2219	2222	rBV4	701	601	0.09%	0.017%
85	15.230	2223	2227	2231	rBV3	548	663	0.10%	0.019%
86	15.261	2231	2233	2237	rVB2	420	371	0.05%	0.010%
87	15.298	2238	2240	2244	rBV4	623	507	0.07%	0.014%
88	15.324	2244	2245	2250	rBV2	619	455	0.07%	0.013%
89	15.366	2250	2253	2254	rBV3	462	330	0.05%	0.009%
90	15.413	2259	2262	2263	rVB2	560	418	0.06%	0.012%
91	15.455	2268	2270	2271	rBV2	1031	454	0.07%	0.013%
92	15.596	2292	2297	2303	rBV5	1168	1840	0.27%	0.052%
93	15.690	2311	2315	2316	rBV3	548	668	0.10%	0.019%
94	15.789	2332	2334	2341	rVV4	791	1255	0.18%	0.035%
95	15.889	2344	2353	2372	rVV	306558	489181	70.63%	13.737%
96	16.140	2399	2401	2404	rBV2	853	1126	0.16%	0.032%
97	16.176	2404	2408	2414	rVV3	4358	7219	1.04%	0.203%
98	16.401	2449	2451	2455	rBV4	870	592	0.09%	0.017%
99	16.569	2481	2483	2484	rBV2	1203	707	0.10%	0.020%
100	17.317	2621	2626	2637	rBV8	3027	5536	0.80%	0.155%

Sum of corrected areas: 3560922

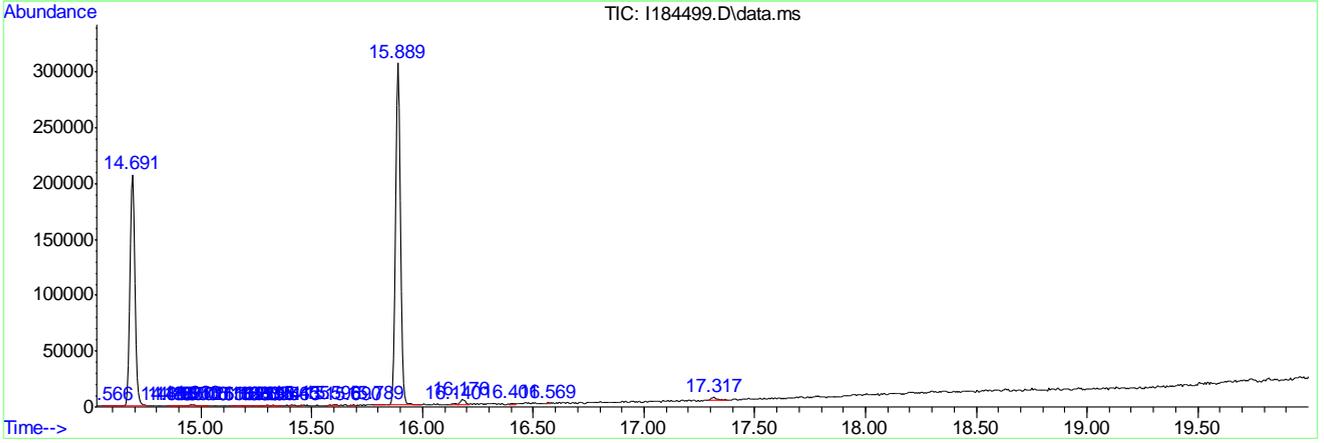
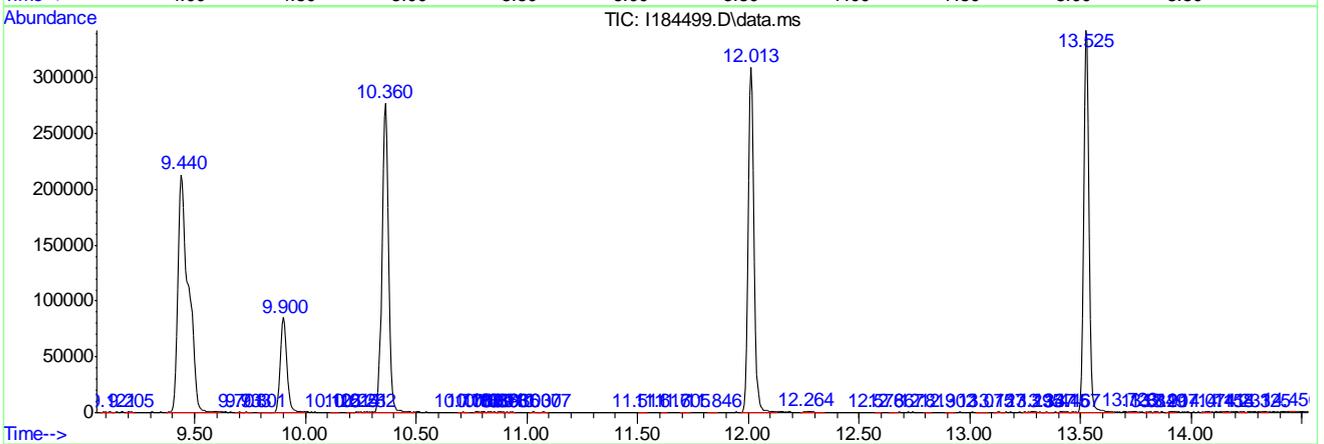
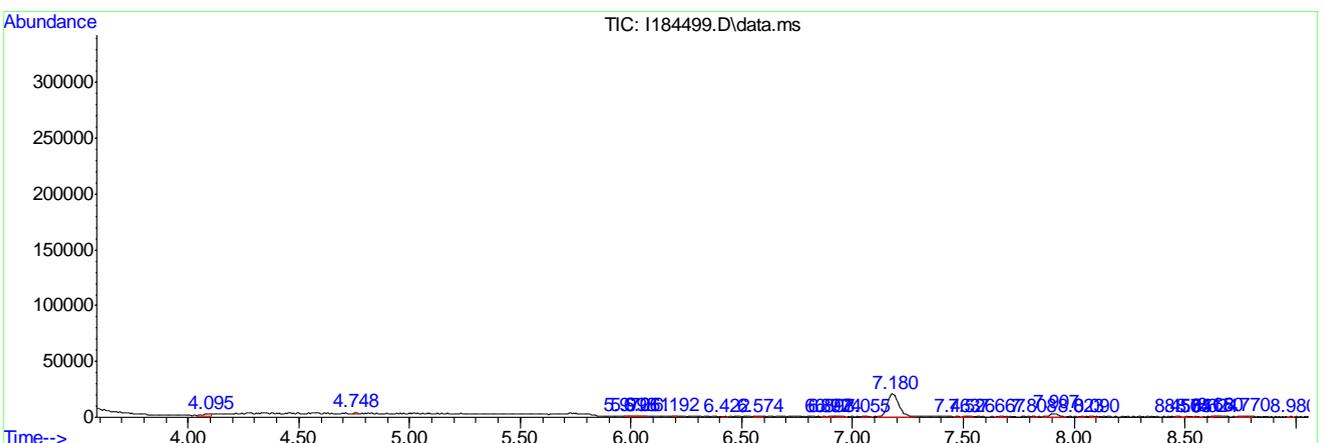
7.12
7

LSC Report - Integrated Chromatogram

Data Path : C:\msdchem\1\DATA\VI7452\
Data File : I184499.D
Acq On : 22 May 2013 2:28 am
Operator : SCOTTM
Sample : JB37361-1,VSL
Misc : MS48597,VI7452,5.7,,,,,1
ALS Vial : 34 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\MI7422.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um

TIC Library : C:\Database\NIST08.L
TIC Integration Parameters: LSCINT.P



7.1.2
7

Tentatively Identified Compound (LSC) summary

Data Path : C:\msdchem\1\DATA\VI7452\
Data File : I184499.D
Acq On : 22 May 2013 2:28 am
Operator : SCOTTM
Sample : JB37361-1,VSL
Misc : MS48597,VI7452,5.7,,,,1
ALS Vial : 34 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\MI7422.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um

TIC Library : C:\Database\NIST08.L
TIC Integration Parameters: LSCINT.P

TIC Top Hit name	RT	EstConc	Units	Response	--Internal Standard--			
					#	RT	Resp	Conc

No Library Search Compounds Detected

7.12
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
 Data File : E203518.D
 Acq On : 23 May 2013 6:22 am
 Operator : Oksanat
 Sample : jB37361-2
 Misc : MS48597,VE8944,6.5,,100,10,1
 ALS Vial : 45 Sample Multiplier: 1

Quant Time: May 23 11:49:46 2013
 Quant Method : C:\MSDCHEM\1\METHODS\ME8922.M
 Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
 QLast Update : Fri May 10 15:40:15 2013
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.703	65	161911	500.00	ug/L	0.01
5) pentafluorobenzene	9.904	168	286001	50.00	ug/L	0.00
66) 1,4-difluorobenzene	10.820	114	392744	50.00	ug/L	0.00
97) chlorobenzene-d5	14.146	117	349499	50.00	ug/L	0.00
114) 1,4-dichlorobenzene-d4	16.719	152	192163	50.00	ug/L	0.00

System Monitoring Compounds

60) dibromofluoromethane (s)	9.946	113	119725	44.43	ug/L	0.00
Spiked Amount	50.000	Range 81 - 121	Recovery	=	88.86%	
61) 1,2-dichloroethane-d4 (s)	10.365	65	158688	45.13	ug/L	0.00
Spiked Amount	50.000	Range 74 - 127	Recovery	=	90.26%	
89) toluene-d8 (s)	12.519	98	450089	44.68	ug/L	0.00
Spiked Amount	50.000	Range 80 - 122	Recovery	=	89.36%	
116) 4-bromofluorobenzene (s)	15.417	95	169909	46.33	ug/L	0.00
Spiked Amount	50.000	Range 78 - 116	Recovery	=	92.66%	

Target Compounds

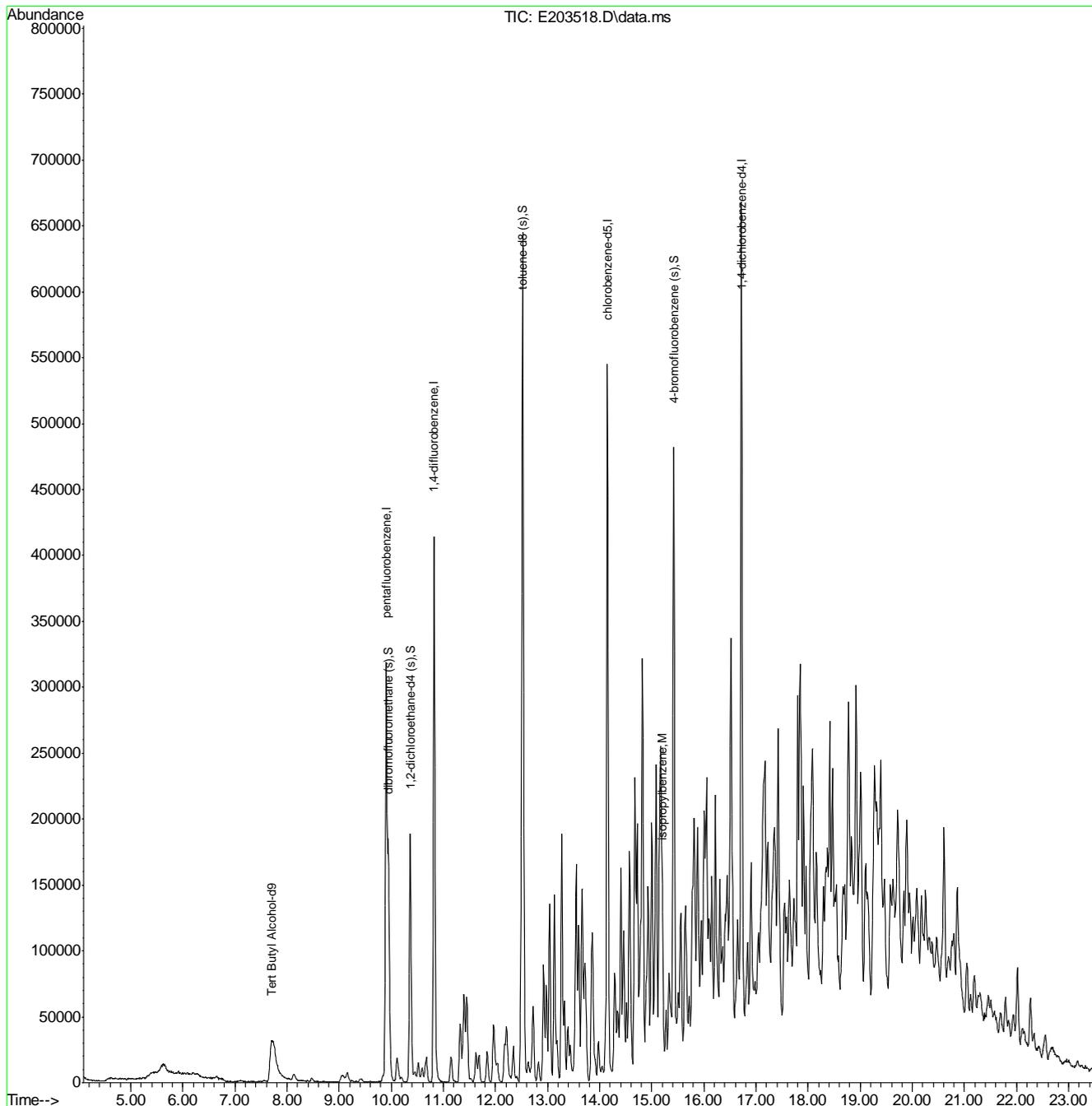
Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
115) isopropylbenzene	15.208	105	24445	2.10	ug/L	93

(#) = qualifier out of range (m) = manual integration (+) = signals summed

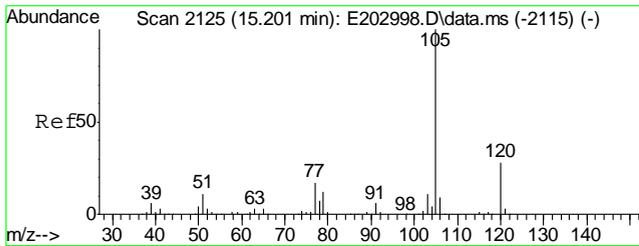
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
 Data File : E203518.D
 Acq On : 23 May 2013 6:22 am
 Operator : Oksanat
 Sample : jb37361-2
 Misc : MS48597,VE8944,6.5,,100,10,1
 ALS Vial : 45 Sample Multiplier: 1

Quant Time: May 23 11:49:46 2013
 Quant Method : C:\MSDCHEM\1\METHODS\ME8922.M
 Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
 QLast Update : Fri May 10 15:40:15 2013
 Response via : Initial Calibration

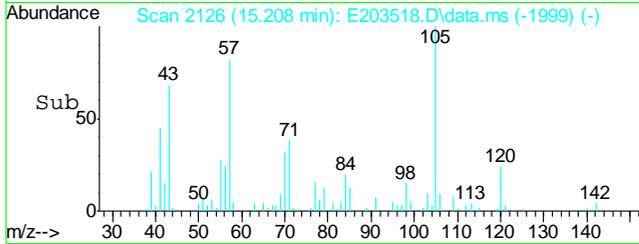
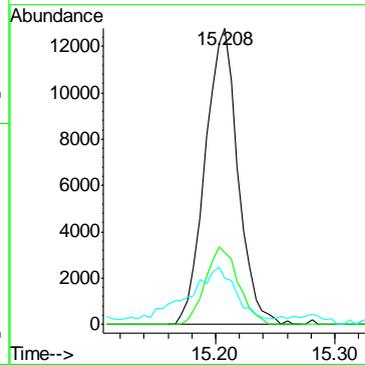
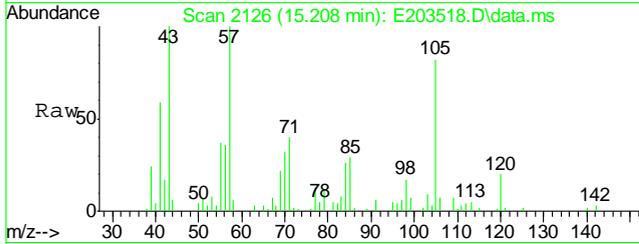


7.1.3
7



#115
 isopropylbenzene
 Concen: 2.10 ug/L
 RT: 15.208 min Scan# 2126
 Delta R.T. 0.006 min
 Lab File: E203518.D
 Acq: 23 May 2013 6:22 am

Tgt Ion	Ratio	Lower	Upper
105	100		
120	24.3	0.0	57.6
77	13.3	0.0	46.7



7.1.3
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI7452\
Data File : I184500.D
Acq On : 22 May 2013 6:02 am
Operator : SCOTTM
Sample : JB37361-3,VSL
Misc : MS48597,VI7452,6.9,,,,,1
ALS Vial : 35 Sample Multiplier: 1

Quant Time: May 22 10:44:39 2013
Quant Method : C:\MSDCHEM\1\METHODS\MI7422.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue May 21 17:53:40 2013
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.175	65	95150	50.00	ug/L	-0.02
5) pentafluorobenzene	9.440	168	205654	50.00	ug/L	-0.01
46) 1,4-difluorobenzene	10.360	114	301108	50.00	ug/L	0.00
75) chlorobenzene-d5	13.530	117	233694	50.00	ug/L	0.00
90) 1,4-dichlorobenzene-d4	15.889	152	104023	50.00	ug/L	0.00

System Monitoring Compounds

43) dibromofluoromethane (s)	9.476	113	86052	54.74	ug/L	0.00
Spiked Amount	50.000	Range 70 - 130	Recovery	=	109.48%	
47) 1,2-dichloroethane-d4...	9.900	65	94030	60.01	ug/L	0.00
Spiked Amount	50.000	Range 70 - 122	Recovery	=	120.02%	
76) toluene-d8 (s)	12.013	98	270142	51.86	ug/L	0.00
Spiked Amount	50.000	Range 81 - 127	Recovery	=	103.72%	
91) 4-bromofluorobenzene (s)	14.691	95	89772	60.09	ug/L	0.00
Spiked Amount	50.000	Range 66 - 132	Recovery	=	120.18%	

Target Compounds Qvalue

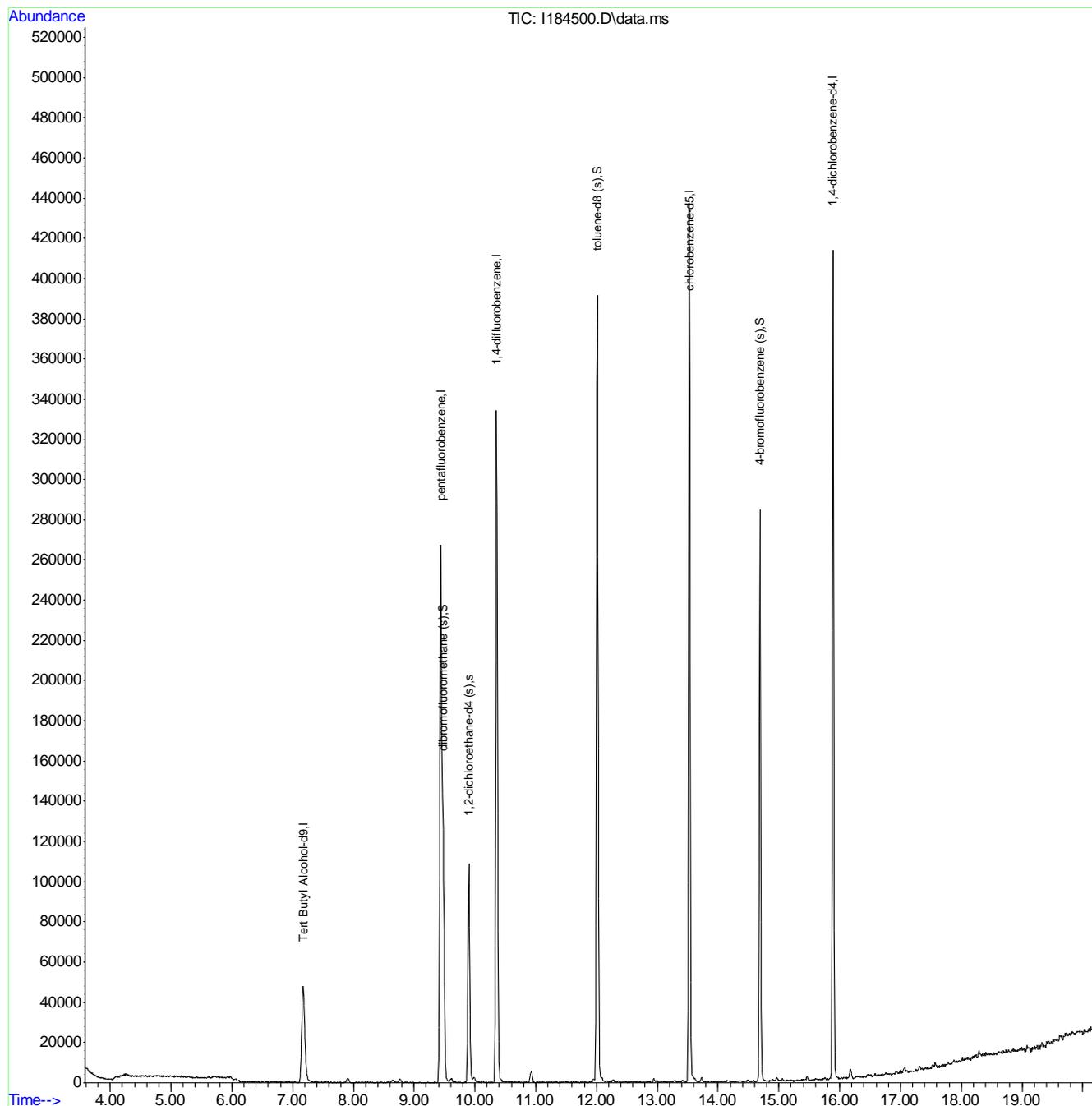
(#) = qualifier out of range (m) = manual integration (+) = signals summed

7.14
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI7452\
Data File : I184500.D
Acq On : 22 May 2013 6:02 am
Operator : SCOTTM
Sample : JB37361-3,VSL
Misc : MS48597,VI7452,6.9,,,,,1
ALS Vial : 35 Sample Multiplier: 1

Quant Time: May 22 10:44:39 2013
Quant Method : C:\MSDCHEM\1\METHODS\MI7422.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
QLast Update : Tue May 21 17:53:40 2013
Response via : Initial Calibration



LSC Area Percent Report

Data Path : C:\msdchem\1\DATA\VI7452\
 Data File : I184500.D
 Acq On : 22 May 2013 6:02 am
 Operator : SCOTTM
 Sample : JB37361-3,VSL
 Misc : MS48597,VI7452,6.9,,,,,1
 ALS Vial : 35 Sample Multiplier: 1

Integration Parameters: RTEINT.P

Integrator: RTE
 Smoothing : ON Filtering: 5
 Sampling : 1 Min Area: 10 Area counts
 Start Thrs: 0.05 Max Peaks: 100
 Stop Thrs : 0.01 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
 Peak separation: 5

Method : C:\MSDCHEM\1\METHODS\MI7422.M
 Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um

Signal : TIC: I18450

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	4.074	87	94	95	rBV4	1190	1813	0.21%	0.039%
2	6.056	469	473	483	rVB6	1172	2672	0.31%	0.058%
3	6.349	527	529	533	rBV2	262	303	0.04%	0.007%
4	6.459	549	550	554	rBV2	472	442	0.05%	0.010%
5	6.521	557	562	569	rVV4	866	1490	0.17%	0.032%
6	6.642	582	585	593	rVB3	317	524	0.06%	0.011%
7	6.699	594	596	604	rVB2	453	849	0.10%	0.018%
8	6.882	626	631	633	rVB2	279	368	0.04%	0.008%
9	7.044	655	662	666	rVB2	460	764	0.09%	0.016%
10	7.175	672	687	712	rBV2	47871	178729	20.75%	3.856%
11	7.327	713	716	720	rVV	512	615	0.07%	0.013%
12	7.358	720	722	725	rVV2	448	371	0.04%	0.008%
13	7.557	748	760	770	rVV5	849	2344	0.27%	0.051%
14	7.792	803	805	811	rBV	377	352	0.04%	0.008%
15	7.907	818	827	841	rBV6	2080	5683	0.66%	0.123%
16	8.090	859	862	865	rBB2	385	370	0.04%	0.008%
17	8.310	901	904	907	rVB	402	345	0.04%	0.007%
18	8.645	960	968	977	rBV3	1221	3415	0.40%	0.074%
19	8.760	984	990	1001	rVB6	1930	4738	0.55%	0.102%
20	8.932	1020	1023	1027	rBV	264	414	0.05%	0.009%
21	9.089	1049	1053	1056	rBV	349	325	0.04%	0.007%
22	9.225	1074	1079	1081	rVB	298	374	0.04%	0.008%
23	9.440	1107	1120	1145	rBV2	267445	861371	100.00%	18.582%
24	9.612	1145	1153	1159	rVB5	1911	4531	0.53%	0.098%
25	9.900	1197	1208	1219	rBV	108975	238598	27.70%	5.147%
26	9.984	1220	1224	1237	rVB8	2308	5779	0.67%	0.125%
27	10.078	1241	1242	1248	rVB	498	464	0.05%	0.010%
28	10.120	1248	1250	1259	rBV3	713	1278	0.15%	0.028%
29	10.177	1259	1261	1267	rVB	390	416	0.05%	0.009%
30	10.355	1285	1295	1319	rBV	334539	692227	80.36%	14.933%
31	10.543	1328	1331	1336	rVB	225	362	0.04%	0.008%
32	10.653	1350	1352	1355	rBV	241	302	0.04%	0.007%
33	10.742	1366	1369	1371	rVV2	386	310	0.04%	0.007%
34	10.784	1376	1377	1382	rVB2	466	476	0.06%	0.010%

LSC Area Percent Report

Data Path : C:\msdchem\1\DATA\VI7452\
 Data File : I184500.D
 Acq On : 22 May 2013 6:02 am
 Operator : SCOTTM
 Sample : JB37361-3,VSL
 Misc : MS48597,VI7452,6.9,,,,,1
 ALS Vial : 35 Sample Multiplier: 1

Integration Parameters: RTEINT.P

Integrator: RTE
 Smoothing : ON Filtering: 5
 Sampling : 1 Min Area: 10 Area counts
 Start Thrs: 0.05 Max Peaks: 100
 Stop Thrs : 0.01 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
 Peak separation: 5

Method : C:\MSDCHEM\1\METHODS\MI7422.M
 Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um

35	10.925	1394	1404	1413	rVB2	6020	13400	1.56%	0.289%
36	11.103	1436	1438	1441	rVB2	455	463	0.05%	0.010%
37	11.161	1447	1449	1455	rVB2	377	472	0.05%	0.010%
38	11.255	1463	1467	1472	rBV2	421	449	0.05%	0.010%
39	11.323	1477	1480	1485	rBV2	593	710	0.08%	0.015%
40	11.480	1504	1510	1515	rVV2	775	1305	0.15%	0.028%
41	11.521	1515	1518	1522	rVB	397	347	0.04%	0.007%
42	11.657	1540	1544	1547	rBV2	513	563	0.07%	0.012%
43	11.731	1557	1558	1567	rBV	303	479	0.06%	0.010%
44	11.898	1585	1590	1593	rBV3	242	382	0.04%	0.008%
45	11.950	1593	1600	1603	rBV3	1676	2595	0.30%	0.056%
46	12.013	1604	1612	1624	rBV	390312	692257	80.37%	14.934%
47	12.159	1638	1640	1647	rVB3	824	1356	0.16%	0.029%
48	12.269	1653	1661	1672	rBV3	1147	2888	0.34%	0.062%
49	12.353	1672	1677	1682	rBV3	714	1126	0.13%	0.024%
50	12.458	1694	1697	1702	rVV3	635	901	0.10%	0.019%
51	12.573	1715	1719	1721	rBV2	282	403	0.05%	0.009%
52	12.635	1728	1731	1737	rVB2	254	403	0.05%	0.009%
53	12.819	1762	1766	1768	rBV3	369	432	0.05%	0.009%
54	12.944	1783	1790	1795	rBV3	1963	3598	0.42%	0.078%
55	12.991	1795	1799	1805	rVB4	984	1550	0.18%	0.033%
56	13.080	1808	1816	1822	rBV4	487	1377	0.16%	0.030%
57	13.127	1822	1825	1830	rVB2	468	632	0.07%	0.014%
58	13.216	1839	1842	1844	rBV3	690	651	0.08%	0.014%
59	13.289	1848	1856	1862	rVB3	1018	2132	0.25%	0.046%
60	13.415	1875	1880	1888	rVB2	923	1864	0.22%	0.040%
61	13.525	1891	1901	1918	rBV	437258	733263	85.13%	15.818%
62	13.729	1933	1940	1947	rBV2	2348	4194	0.49%	0.090%
63	13.791	1947	1952	1954	rVV3	454	505	0.06%	0.011%
64	13.823	1955	1958	1962	rVB4	457	511	0.06%	0.011%
65	13.854	1962	1964	1971	rBV4	433	749	0.09%	0.016%
66	13.912	1971	1975	1981	rVB2	281	564	0.07%	0.012%
67	13.953	1981	1983	1986	rBV2	308	363	0.04%	0.008%
68	14.006	1990	1993	1998	rBV3	311	401	0.05%	0.009%
69	14.074	2004	2006	2011	rVB3	506	582	0.07%	0.013%
70	14.147	2018	2020	2035	rVB5	790	1677	0.19%	0.036%
71	14.273	2042	2044	2050	rVB2	358	369	0.04%	0.008%

LSC Area Percent Report

Data Path : C:\msdchem\1\DATA\VI7452\
 Data File : I184500.D
 Acq On : 22 May 2013 6:02 am
 Operator : SCOTTM
 Sample : JB37361-3,VSL
 Misc : MS48597,VI7452,6.9,,,,,1
 ALS Vial : 35 Sample Multiplier: 1

Integration Parameters: RTEINT.P

Integrator: RTE
 Smoothing : ON Filtering: 5
 Sampling : 1 Min Area: 10 Area counts
 Start Thrs: 0.05 Max Peaks: 100
 Stop Thrs : 0.01 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
 Peak separation: 5

Method : C:\MSDCHEM\1\METHODS\MI7422.M
 Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um

72	14.351	2054	2059	2062	rBV3	517	853	0.10%	0.018%
73	14.445	2076	2077	2081	rBV3	514	349	0.04%	0.008%
74	14.487	2081	2085	2092	rVB5	812	1388	0.16%	0.030%
75	14.544	2095	2096	2101	rBV3	312	392	0.05%	0.008%
76	14.581	2101	2103	2107	rVB2	490	386	0.04%	0.008%
77	14.691	2113	2124	2137	rBV	284503	445103	51.67%	9.602%
78	14.775	2138	2140	2143	rVB3	592	364	0.04%	0.008%
79	14.848	2152	2154	2158	rBV2	690	774	0.09%	0.017%
80	14.895	2160	2163	2171	rVV3	822	1450	0.17%	0.031%
81	14.963	2171	2176	2183	rVV6	1666	2701	0.31%	0.058%
82	15.057	2191	2194	2202	rBV4	1281	1368	0.16%	0.030%
83	15.125	2204	2207	2211	rBV4	801	1157	0.13%	0.025%
84	15.193	2217	2220	2227	rVB4	472	569	0.07%	0.012%
85	15.261	2230	2233	2236	rBV3	832	973	0.11%	0.021%
86	15.360	2249	2252	2253	rVB2	521	390	0.05%	0.008%
87	15.465	2269	2272	2278	rVB4	2052	2730	0.32%	0.059%
88	15.507	2279	2280	2284	rBV2	326	371	0.04%	0.008%
89	15.601	2293	2298	2304	rBV5	845	1559	0.18%	0.034%
90	15.716	2319	2320	2322	rVB2	833	374	0.04%	0.008%
91	15.763	2326	2329	2334	rVV6	1232	1120	0.13%	0.024%
92	15.794	2334	2335	2338	rVB2	557	402	0.05%	0.009%
93	15.889	2344	2353	2370	rVB	412066	657750	76.36%	14.189%
94	16.030	2376	2380	2384	rBV5	719	1032	0.12%	0.022%
95	16.124	2397	2398	2400	rBV2	785	577	0.07%	0.012%
96	16.176	2402	2408	2418	rVB6	4842	10098	1.17%	0.218%
97	16.454	2458	2461	2464	rBV5	1228	1653	0.19%	0.036%
98	16.574	2478	2484	2491	rBV7	1690	4625	0.54%	0.100%
99	17.008	2564	2567	2572	rBV4	1440	1552	0.18%	0.033%
100	17.071	2574	2579	2584	rBV6	2534	4137	0.48%	0.089%

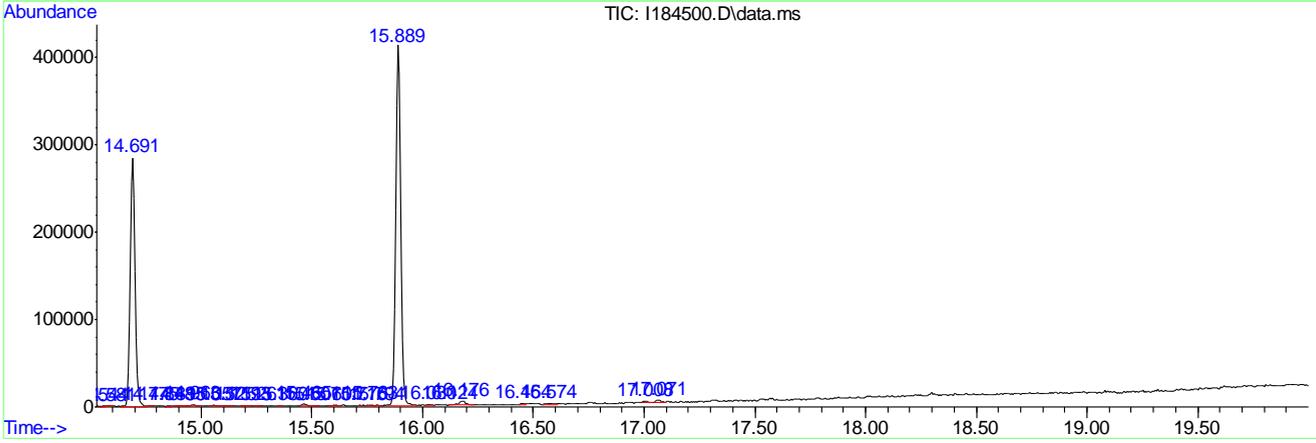
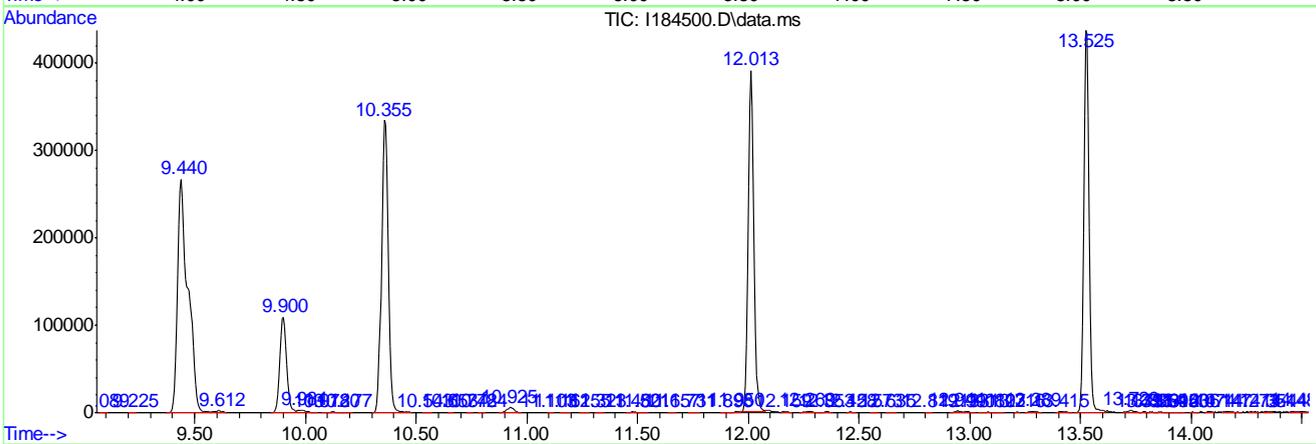
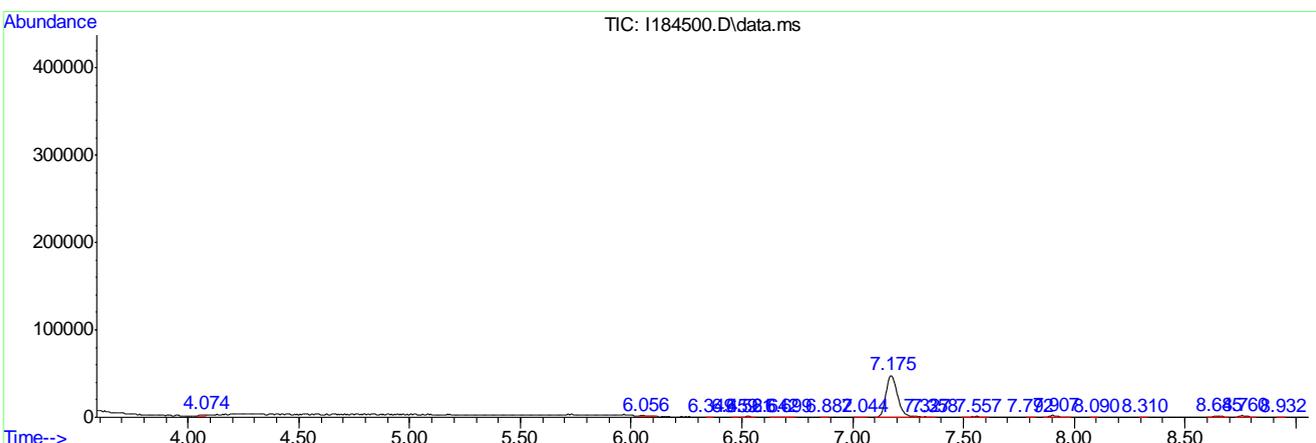
Sum of corrected areas: 4635524

LSC Report - Integrated Chromatogram

Data Path : C:\msdchem\1\DATA\VI7452\
Data File : I184500.D
Acq On : 22 May 2013 6:02 am
Operator : SCOTTM
Sample : JB37361-3,VSL
Misc : MS48597,VI7452,6.9,,,,,1
ALS Vial : 35 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\MI7422.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um

TIC Library : C:\Database\NIST08.L
TIC Integration Parameters: LSCINT.P



7.1.5
7

Tentatively Identified Compound (LSC) summary

Data Path : C:\msdchem\1\DATA\VI7452\
Data File : I184500.D
Acq On : 22 May 2013 6:02 am
Operator : SCOTTM
Sample : JB37361-3,VSL
Misc : MS48597,VI7452,6.9,,,,,1
ALS Vial : 35 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\MI7422.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um

TIC Library : C:\Database\NIST08.L
TIC Integration Parameters: LSCINT.P

TIC Top Hit name	RT	EstConc	Units	Response	--Internal Standard--			
					#	RT	Resp	Conc

No Library Search Compounds Detected

7.15
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
 Data File : E203519.D
 Acq On : 23 May 2013 6:52 am
 Operator : Oksanat
 Sample : jB37361-4
 Misc : MS48597,VE8944,6.1,,100,10,1
 ALS Vial : 46 Sample Multiplier: 1

Quant Time: May 23 11:51:20 2013
 Quant Method : C:\MSDCHEM\1\METHODS\ME8922.M
 Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
 QLast Update : Fri May 10 15:40:15 2013
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.734	65	166805	500.00	ug/L	0.04
5) pentafluorobenzene	9.905	168	269800	50.00	ug/L	0.00
66) 1,4-difluorobenzene	10.820	114	374757	50.00	ug/L	0.00
97) chlorobenzene-d5	14.152	117	325607	50.00	ug/L	0.00
114) 1,4-dichlorobenzene-d4	16.720	152	191299	50.00	ug/L	0.00

System Monitoring Compounds

60) dibromofluoromethane (s)	9.947	113	112775	44.36	ug/L	0.00
Spiked Amount	50.000	Range 81 - 121	Recovery	=	88.72%	
61) 1,2-dichloroethane-d4 (s)	10.360	65	145201	43.77	ug/L	0.00
Spiked Amount	50.000	Range 74 - 127	Recovery	=	87.54%	
89) toluene-d8 (s)	12.520	98	694327	72.24	ug/L	0.00
Spiked Amount	50.000	Range 80 - 122	Recovery	=	144.48%#	
116) 4-bromofluorobenzene (s)	15.417	95	235231	64.44	ug/L	0.00
Spiked Amount	50.000	Range 78 - 116	Recovery	=	128.88%#	

Target Compounds

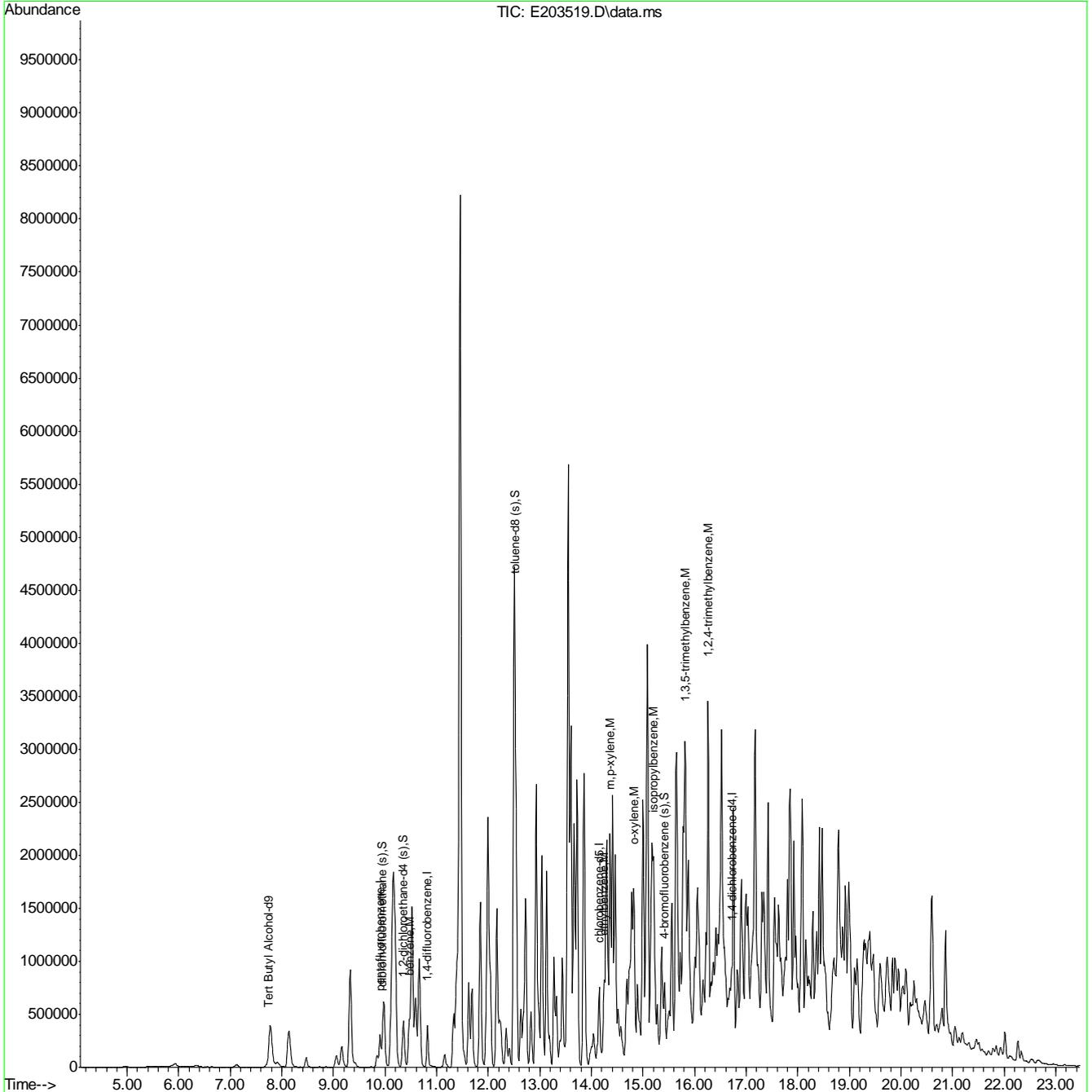
Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
75) benzene	10.475	78	334982	35.07	ug/L	100
108) ethylbenzene	14.246	91	605247	59.06	ug/L	97
109) m,p-xylene	14.366	106	655615	153.27	ug/L	90
110) o-xylene	14.826	106	15937	3.73	ug/L	89
115) isopropylbenzene	15.203	105	522581	45.05	ug/L	100
125) 1,3,5-trimethylbenzene	15.825	105	542342	57.87	ug/L	98
128) 1,2,4-trimethylbenzene	16.259	105	1758634	175.28	ug/L	93

(#) = qualifier out of range (m) = manual integration (+) = signals summed

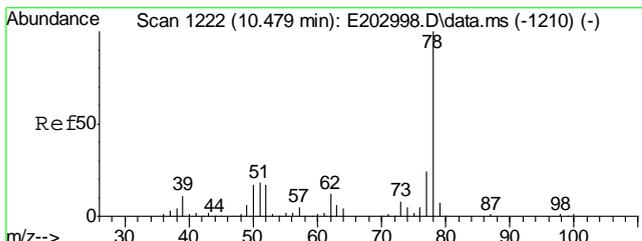
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
 Data File : E203519.D
 Acq On : 23 May 2013 6:52 am
 Operator : Oksanat
 Sample : jb37361-4
 Misc : MS48597,VE8944,6.1,,100,10,1
 ALS Vial : 46 Sample Multiplier: 1

Quant Time: May 23 11:51:20 2013
 Quant Method : C:\MSDCHEM\1\METHODS\ME8922.M
 Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
 QLast Update : Fri May 10 15:40:15 2013
 Response via : Initial Calibration

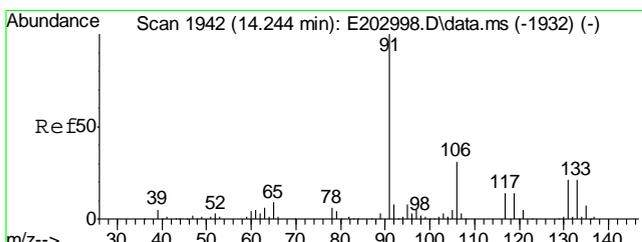
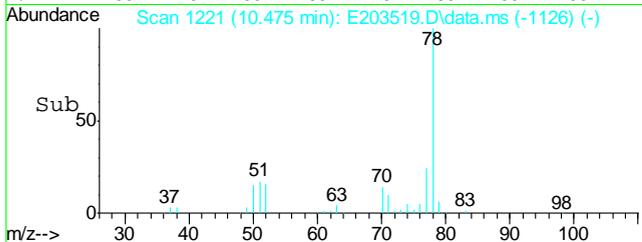
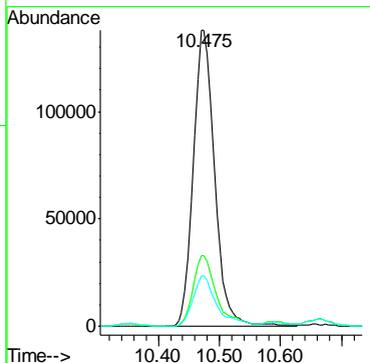
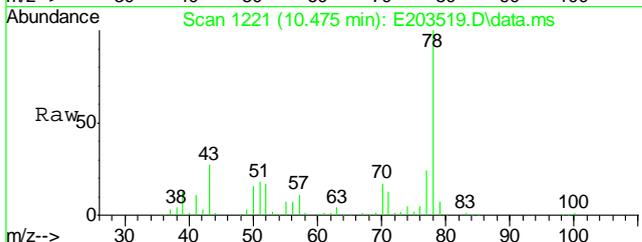


7.16
7



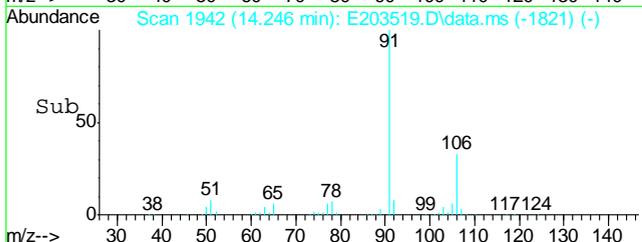
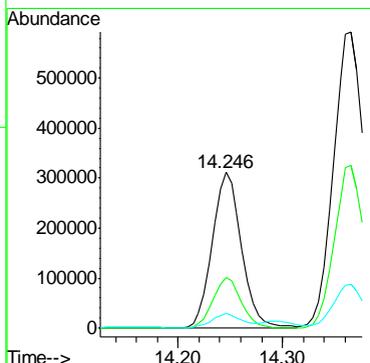
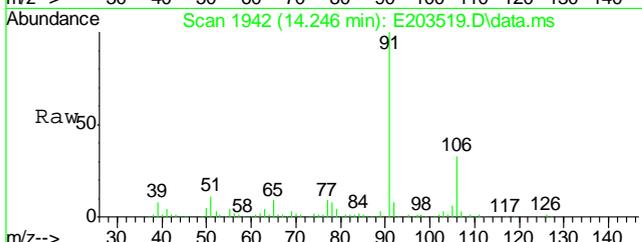
#75
benzene
Concen: 35.07 ug/L
RT: 10.475 min Scan# 1221
Delta R.T. -0.004 min
Lab File: E203519.D
Acq: 23 May 2013 6:52 am

Tgt Ion	Resp	Lower	Upper
78	334982		
77	23.9	0.0	53.9
52	16.9	0.0	46.9

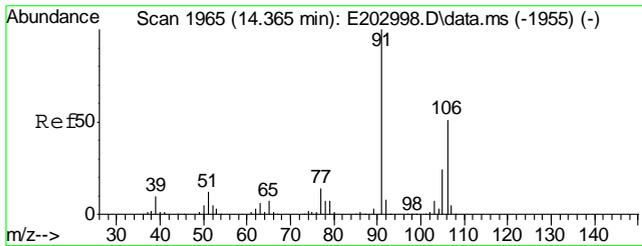


#108
ethylbenzene
Concen: 59.06 ug/L
RT: 14.246 min Scan# 1942
Delta R.T. 0.001 min
Lab File: E203519.D
Acq: 23 May 2013 6:52 am

Tgt Ion	Resp	Lower	Upper
91	605247		
106	32.9	0.9	60.9
77	8.7	0.0	38.6

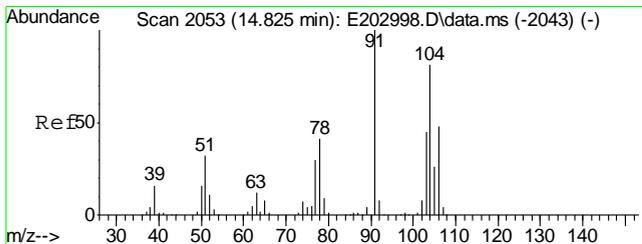
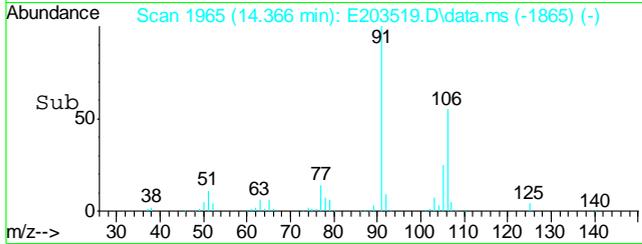
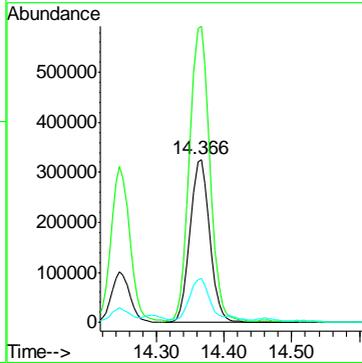
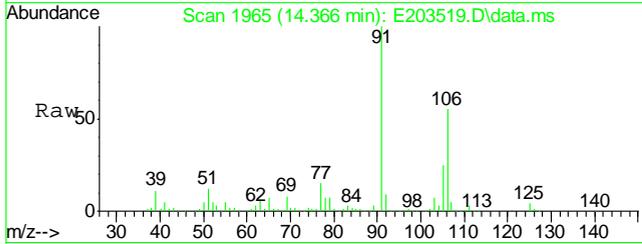


7.1.6
7



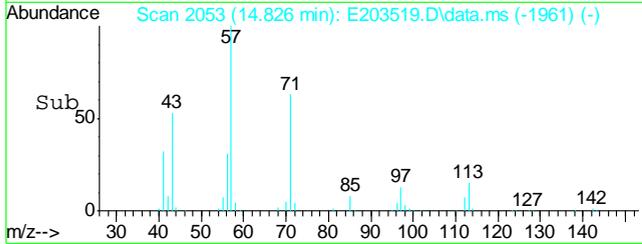
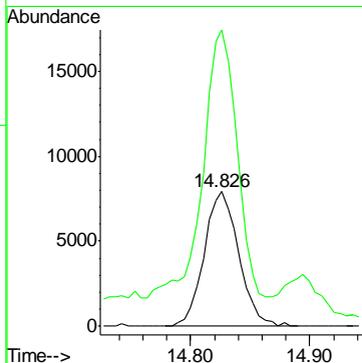
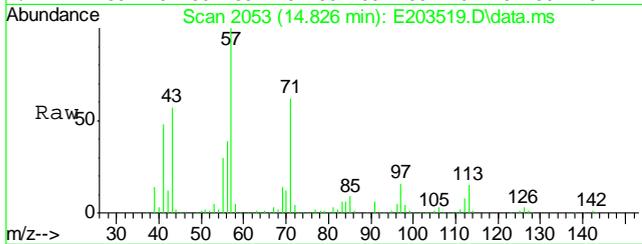
#109
 m,p-xylene
 Concen: 153.27 ug/L
 RT: 14.366 min Scan# 1965
 Delta R.T. 0.002 min
 Lab File: E203519.D
 Acq: 23 May 2013 6:52 am

Tgt Ion	Resp	Lower	Upper
106	100		
91	181.4	167.0	227.0
77	25.5	0.0	58.4

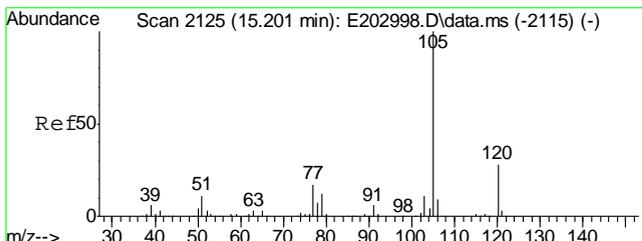


#110
 o-xylene
 Concen: 3.73 ug/L
 RT: 14.826 min Scan# 2053
 Delta R.T. 0.002 min
 Lab File: E203519.D
 Acq: 23 May 2013 6:52 am

Tgt Ion	Resp	Lower	Upper
106	100		
91	189.2	176.3	236.3

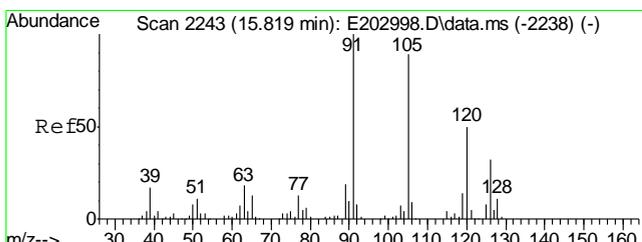
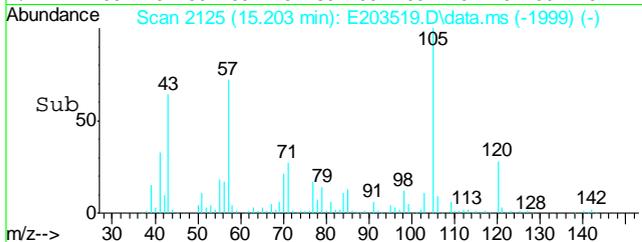
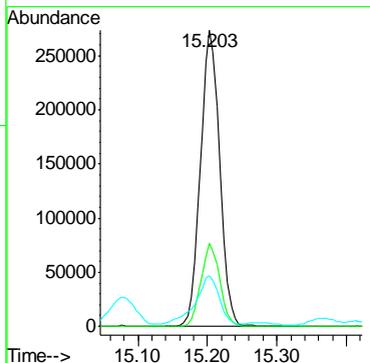
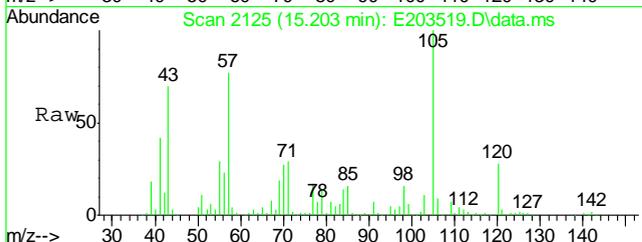


7.1.6
7



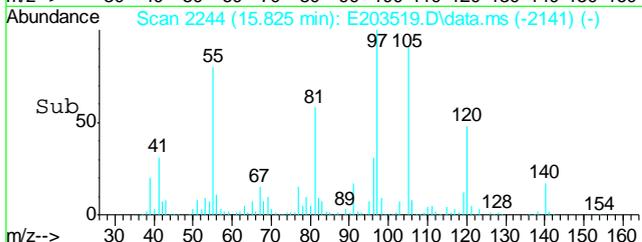
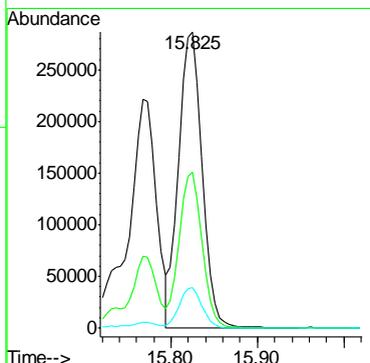
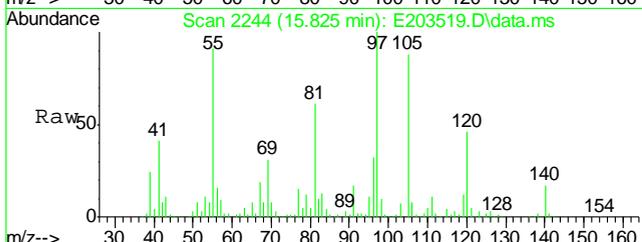
#115
 isopropylbenzene
 Concen: 45.05 ug/L
 RT: 15.203 min Scan# 2125
 Delta R.T. 0.001 min
 Lab File: E203519.D
 Acq: 23 May 2013 6:52 am

Tgt Ion	Resp	Lower	Upper
105	522581	100	
120	27.9	0.0	57.6
77	16.8	0.0	46.7

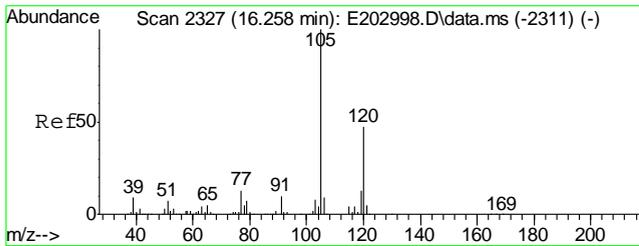


#125
 1,3,5-trimethylbenzene
 Concen: 57.87 ug/L
 RT: 15.825 min Scan# 2244
 Delta R.T. 0.007 min
 Lab File: E203519.D
 Acq: 23 May 2013 6:52 am

Tgt Ion	Resp	Lower	Upper
105	542342	100	
120	52.9	21.6	81.6
119	13.6	0.0	43.4

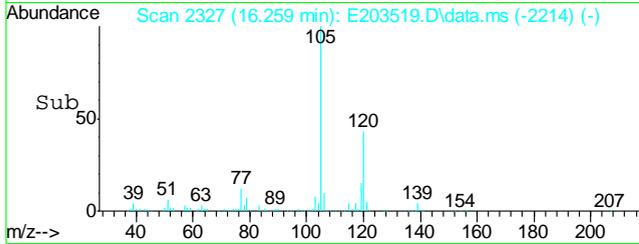
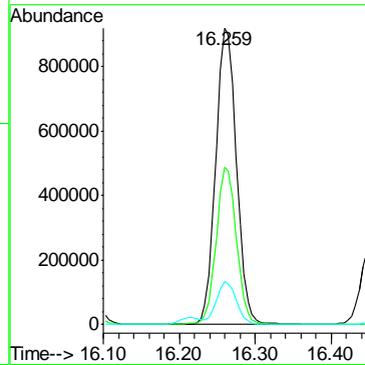
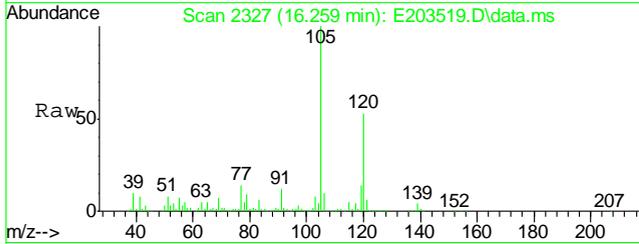


7.16
7



#128
 1,2,4-trimethylbenzene
 Concen: 175.28 ug/L
 RT: 16.259 min Scan# 2327
 Delta R.T. 0.001 min
 Lab File: E203519.D
 Acq: 23 May 2013 6:52 am

Tgt Ion	Resp	Lower	Upper
105	1758634		
120	53.1	17.3	77.3
119	14.3	0.0	43.4



7.1.6
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
 Data File : E203536.D
 Acq On : 23 May 2013 4:51 pm
 Operator : Oksanat
 Sample : jb37361-4cfs
 Misc : MS48597,VE8945,6.1,,10,10,1
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 24 12:17:46 2013
 Quant Method : C:\MSDCHEM\1\METHODS\ME8922.M
 Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
 QLast Update : Fri May 10 15:40:15 2013
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.698	65	99046	500.00	ug/L	0.00
5) pentafluorobenzene	9.905	168	145403	50.00	ug/L	0.00
66) 1,4-difluorobenzene	10.820	114	199308	50.00	ug/L	0.00
97) chlorobenzene-d5	14.147	117	179436	50.00	ug/L	0.00
114) 1,4-dichlorobenzene-d4	16.720	152	97187	50.00	ug/L	0.00

System Monitoring Compounds

60) dibromofluoromethane (s)	9.947	113	59936	43.75	ug/L	0.00
Spiked Amount	50.000	Range 81 - 121	Recovery =	87.50%		
61) 1,2-dichloroethane-d4 (s)	10.365	65	75501	42.23	ug/L	0.00
Spiked Amount	50.000	Range 74 - 127	Recovery =	84.46%		
89) toluene-d8 (s)	12.520	98	244457	47.82	ug/L	0.00
Spiked Amount	50.000	Range 80 - 122	Recovery =	95.64%		
116) 4-bromofluorobenzene (s)	15.418	95	90830	48.97	ug/L	0.00
Spiked Amount	50.000	Range 78 - 116	Recovery =	97.94%		

Target Compounds

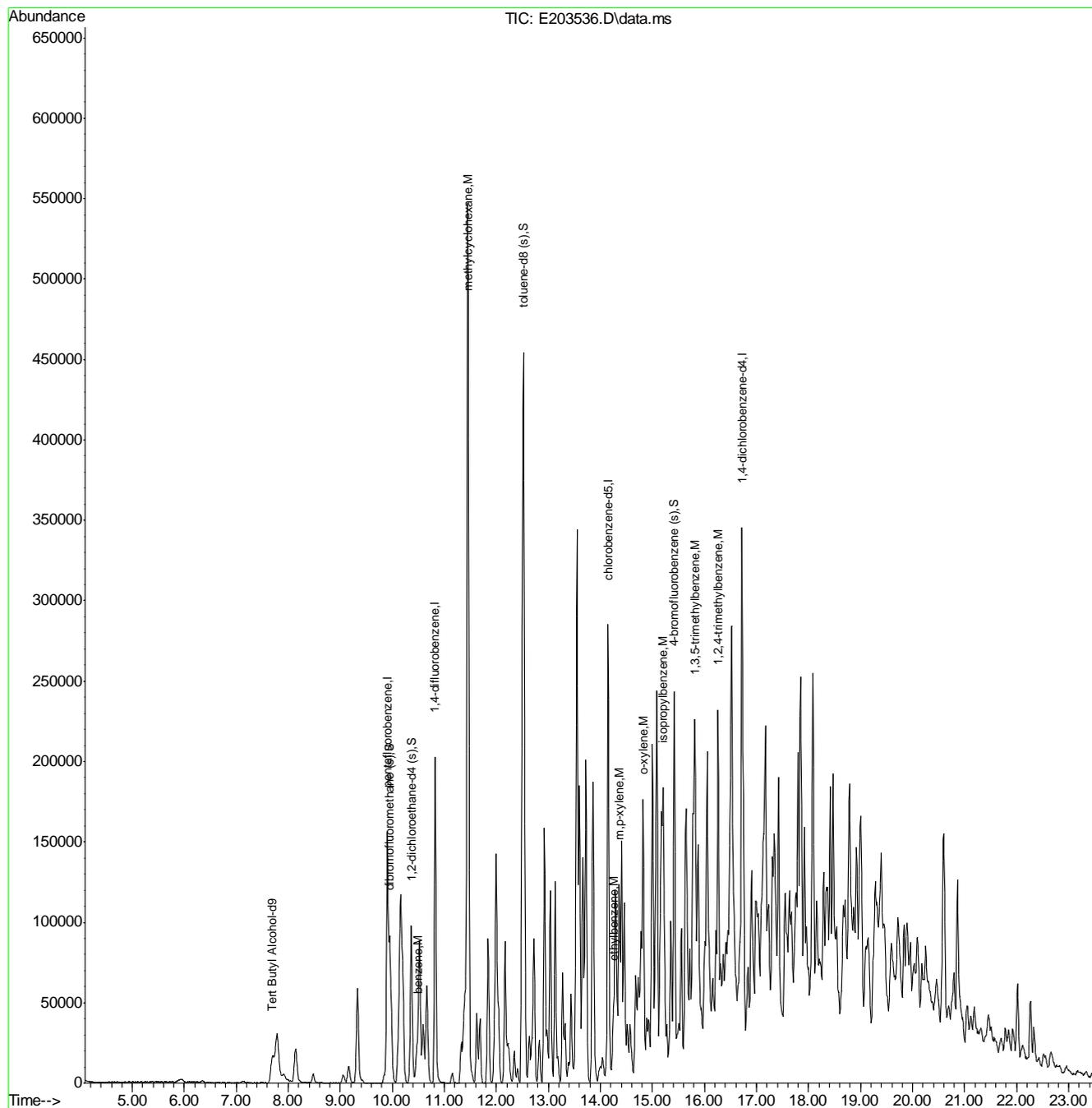
						Qvalue
75) benzene	10.480	78	18945	3.73	ug/L	100
83) methylcyclohexane	11.453	83	286837	126.99	ug/L	99
108) ethylbenzene	14.251	91	33036	5.85	ug/L	99
109) m,p-xylene	14.366	106	37504	15.20	ug/L	97
110) o-xylene	14.832	106	779	0.33	ug/L #	70
115) isopropylbenzene	15.203	105	28828	4.89	ug/L	96
125) 1,3,5-trimethylbenzene	15.820	105	31924	6.70	ug/L	97
128) 1,2,4-trimethylbenzene	16.260	105	109908	21.56	ug/L	99

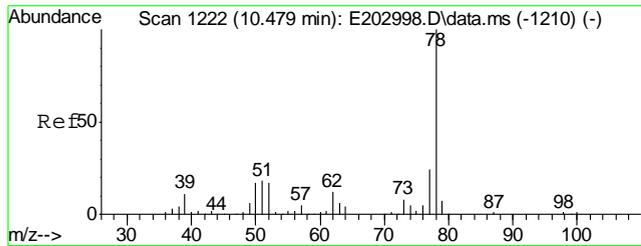
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
Data File : E203536.D
Acq On : 23 May 2013 4:51 pm
Operator : Oksanat
Sample : jB37361-4cfs
Misc : MS48597,VE8945,6.1,,10,10,1
ALS Vial : 12 Sample Multiplier: 1

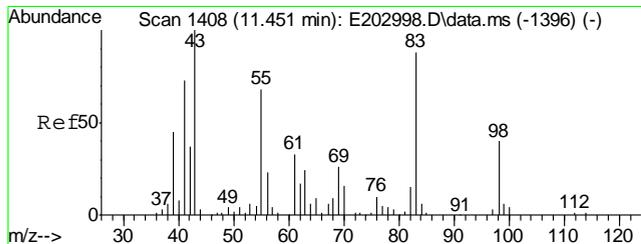
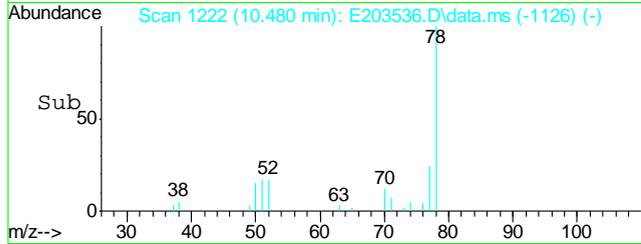
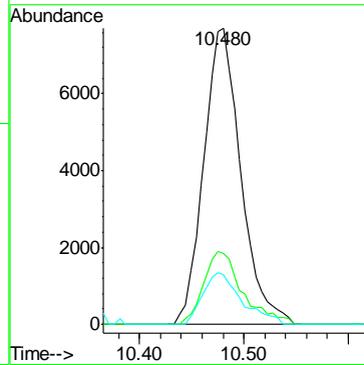
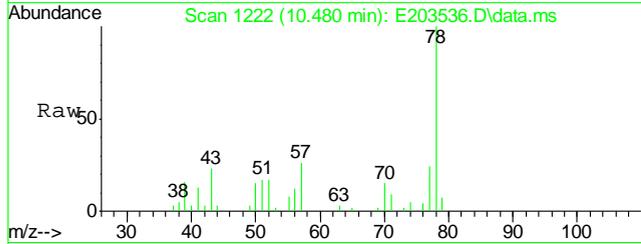
Quant Time: May 24 12:17:46 2013
Quant Method : C:\MSDCHEM\1\METHODS\ME8922.M
Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
QLast Update : Fri May 10 15:40:15 2013
Response via : Initial Calibration





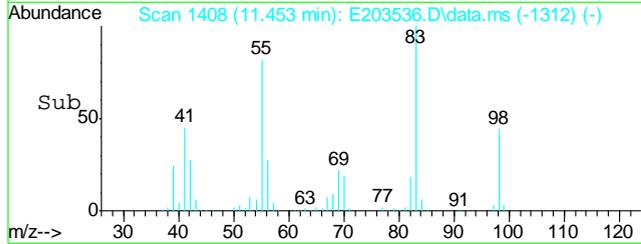
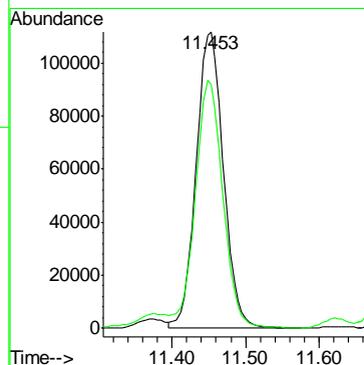
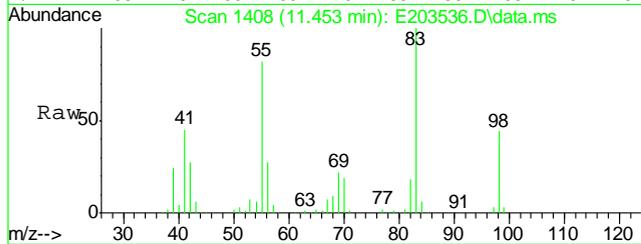
#75
benzene
Concen: 3.73 ug/L
RT: 10.480 min Scan# 1222
Delta R.T. 0.002 min
Lab File: E203536.D
Acq: 23 May 2013 4:51 pm

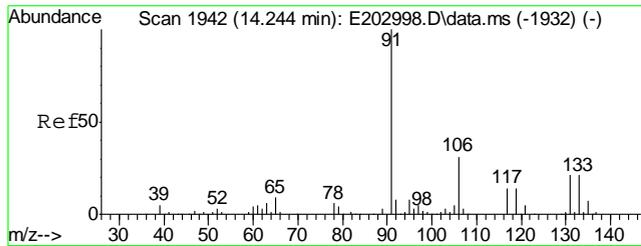
Tgt Ion	Resp	Lower	Upper
78	18945	100	
77	23.7	0.0	53.9
52	16.9	0.0	46.9



#83
methylcyclohexane
Concen: 126.99 ug/L
RT: 11.453 min Scan# 1408
Delta R.T. 0.002 min
Lab File: E203536.D
Acq: 23 May 2013 4:51 pm

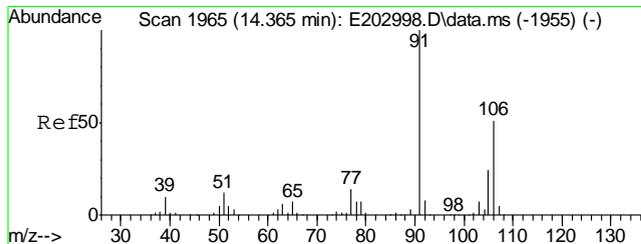
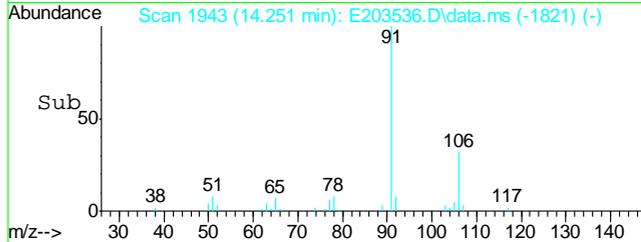
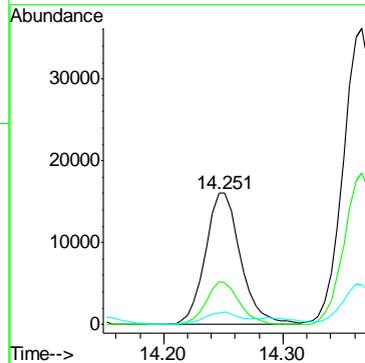
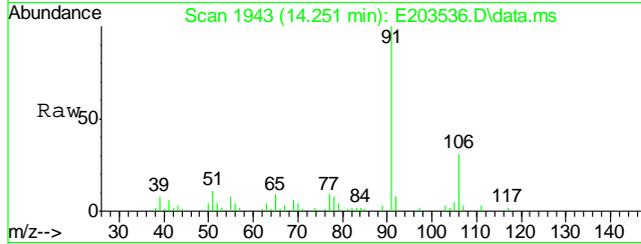
Tgt Ion	Resp	Lower	Upper
83	286837	100	
55	84.9	60.3	112.1





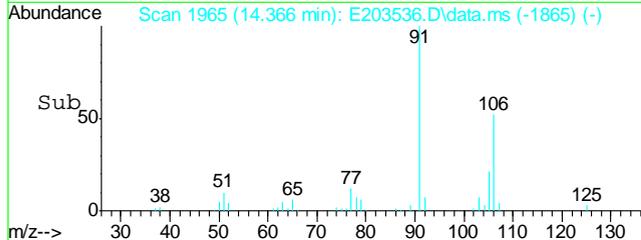
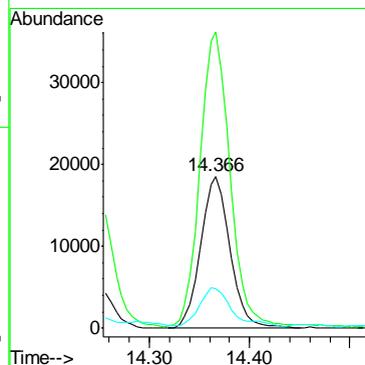
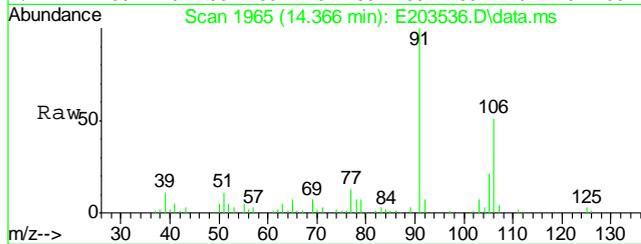
#108
 ethylbenzene
 Concen: 5.85 ug/L
 RT: 14.251 min Scan# 1943
 Delta R.T. 0.007 min
 Lab File: E203536.D
 Acq: 23 May 2013 4:51 pm

Tgt Ion	Resp	Lower	Upper
91	33036	100	
106	31.5	0.9	60.9
77	9.4	0.0	38.6

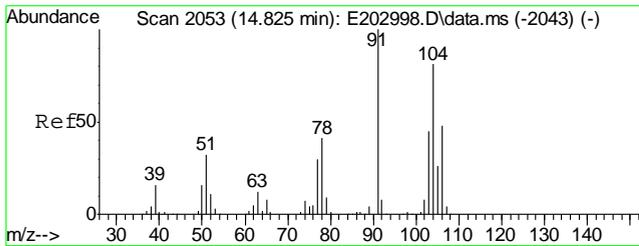


#109
 m,p-xylene
 Concen: 15.20 ug/L
 RT: 14.366 min Scan# 1965
 Delta R.T. 0.002 min
 Lab File: E203536.D
 Acq: 23 May 2013 4:51 pm

Tgt Ion	Resp	Lower	Upper
106	37504	100	
91	193.1	167.0	227.0
77	24.2	0.0	58.4

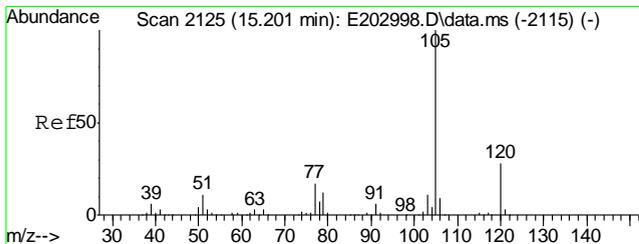
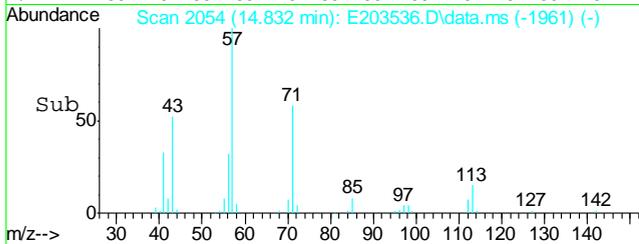
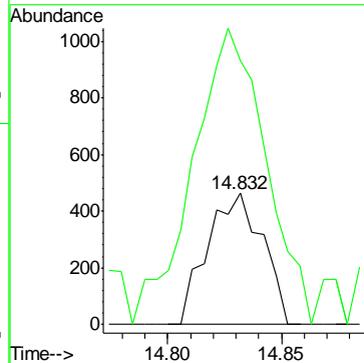
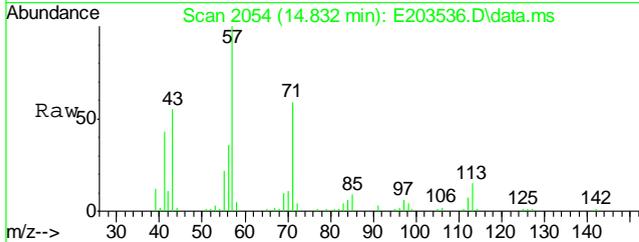


7.17
7



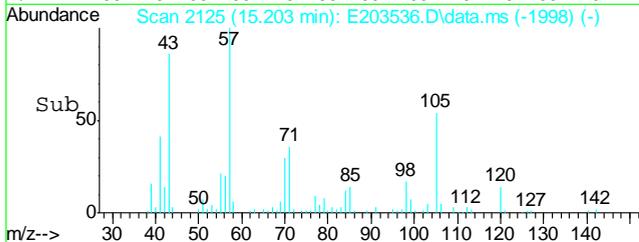
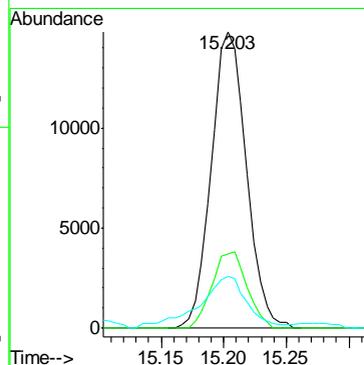
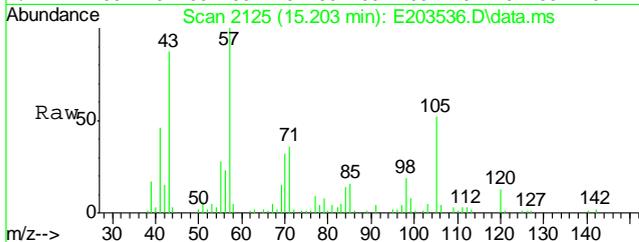
#110
 o-xylene
 Concen: 0.33 ug/L
 RT: 14.832 min Scan# 2054
 Delta R.T. 0.008 min
 Lab File: E203536.D
 Acq: 23 May 2013 4:51 pm

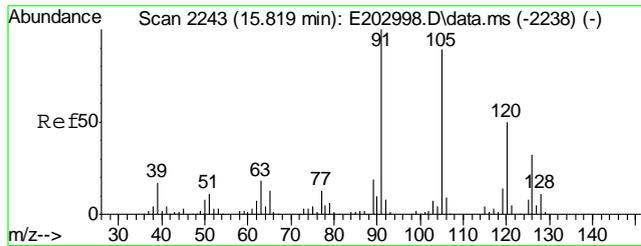
Tgt Ion:	106	Resp:	779
Ion Ratio	Lower	Upper	
	106	100	
	91	159.6	176.3 236.3#



#115
 isopropylbenzene
 Concen: 4.89 ug/L
 RT: 15.203 min Scan# 2125
 Delta R.T. 0.002 min
 Lab File: E203536.D
 Acq: 23 May 2013 4:51 pm

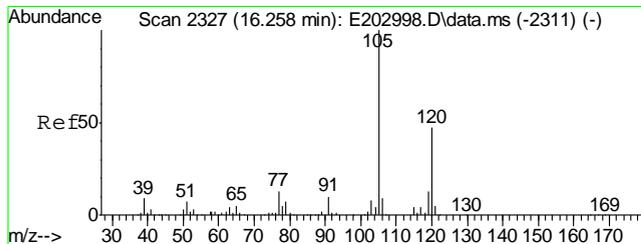
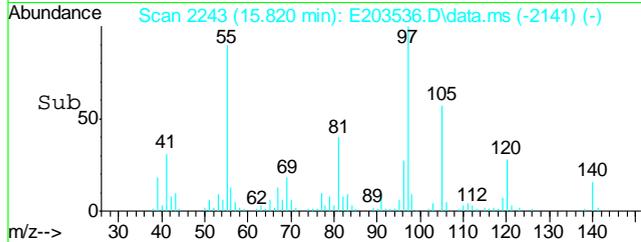
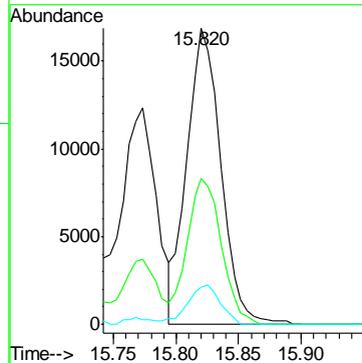
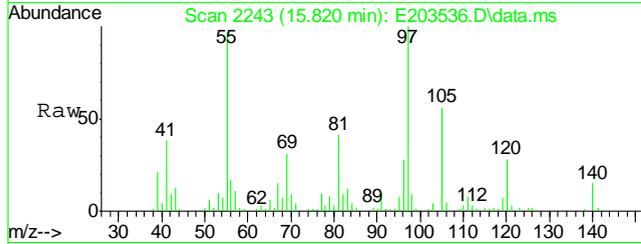
Tgt Ion:	105	Resp:	28828
Ion Ratio	Lower	Upper	
	105	100	
	120	25.1	0.0 57.6
	77	16.0	0.0 46.7





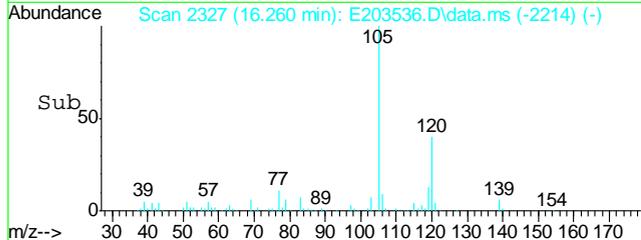
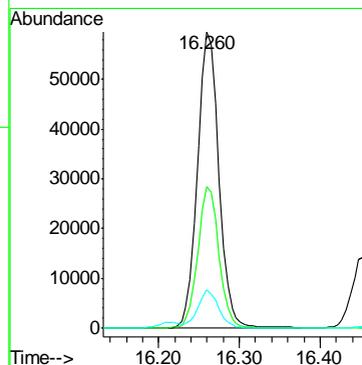
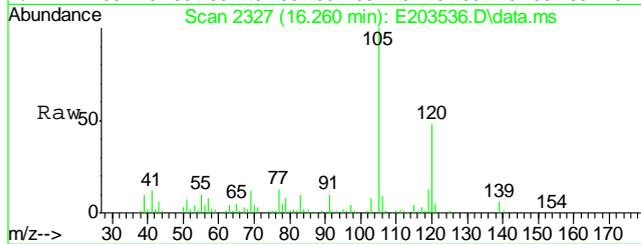
#125
 1,3,5-trimethylbenzene
 Concen: 6.70 ug/L
 RT: 15.820 min Scan# 2243
 Delta R.T. 0.002 min
 Lab File: E203536.D
 Acq: 23 May 2013 4:51 pm

Tgt Ion	Resp	Lower	Upper
105	31924	100	
120	49.3	21.6	81.6
119	12.7	0.0	43.4



#128
 1,2,4-trimethylbenzene
 Concen: 21.56 ug/L
 RT: 16.260 min Scan# 2327
 Delta R.T. 0.002 min
 Lab File: E203536.D
 Acq: 23 May 2013 4:51 pm

Tgt Ion	Resp	Lower	Upper
105	109908	100	
120	47.8	17.3	77.3
119	12.8	0.0	43.4



7.17
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
 Data File : E203504.D
 Acq On : 22 May 2013 11:18 pm
 Operator : Oksanat
 Sample : mb
 Misc : MS48533,VE8944,5,,100,5,1
 ALS Vial : 31 Sample Multiplier: 1

Quant Time: May 23 11:19:17 2013
 Quant Method : C:\MSDCHEM\1\METHODS\ME8922.M
 Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
 QLast Update : Fri May 10 15:40:15 2013
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.708	65	143923	500.00	ug/L	0.02
5) pentafluorobenzene	9.904	168	267300	50.00	ug/L	0.00
66) 1,4-difluorobenzene	10.820	114	371201	50.00	ug/L	0.00
97) chlorobenzene-d5	14.146	117	340230	50.00	ug/L	0.00
114) 1,4-dichlorobenzene-d4	16.719	152	189648	50.00	ug/L	0.00

System Monitoring Compounds

60) dibromofluoromethane (s)	9.946	113	111674	44.34	ug/L	0.00
Spiked Amount	50.000	Range 81 - 121	Recovery	=	88.68%	
61) 1,2-dichloroethane-d4 (s)	10.360	65	150409	45.77	ug/L	0.00
Spiked Amount	50.000	Range 74 - 127	Recovery	=	91.54%	
89) toluene-d8 (s)	12.520	98	433268	45.51	ug/L	0.00
Spiked Amount	50.000	Range 80 - 122	Recovery	=	91.02%	
116) 4-bromofluorobenzene (s)	15.417	95	165085	45.61	ug/L	0.00
Spiked Amount	50.000	Range 78 - 116	Recovery	=	91.22%	

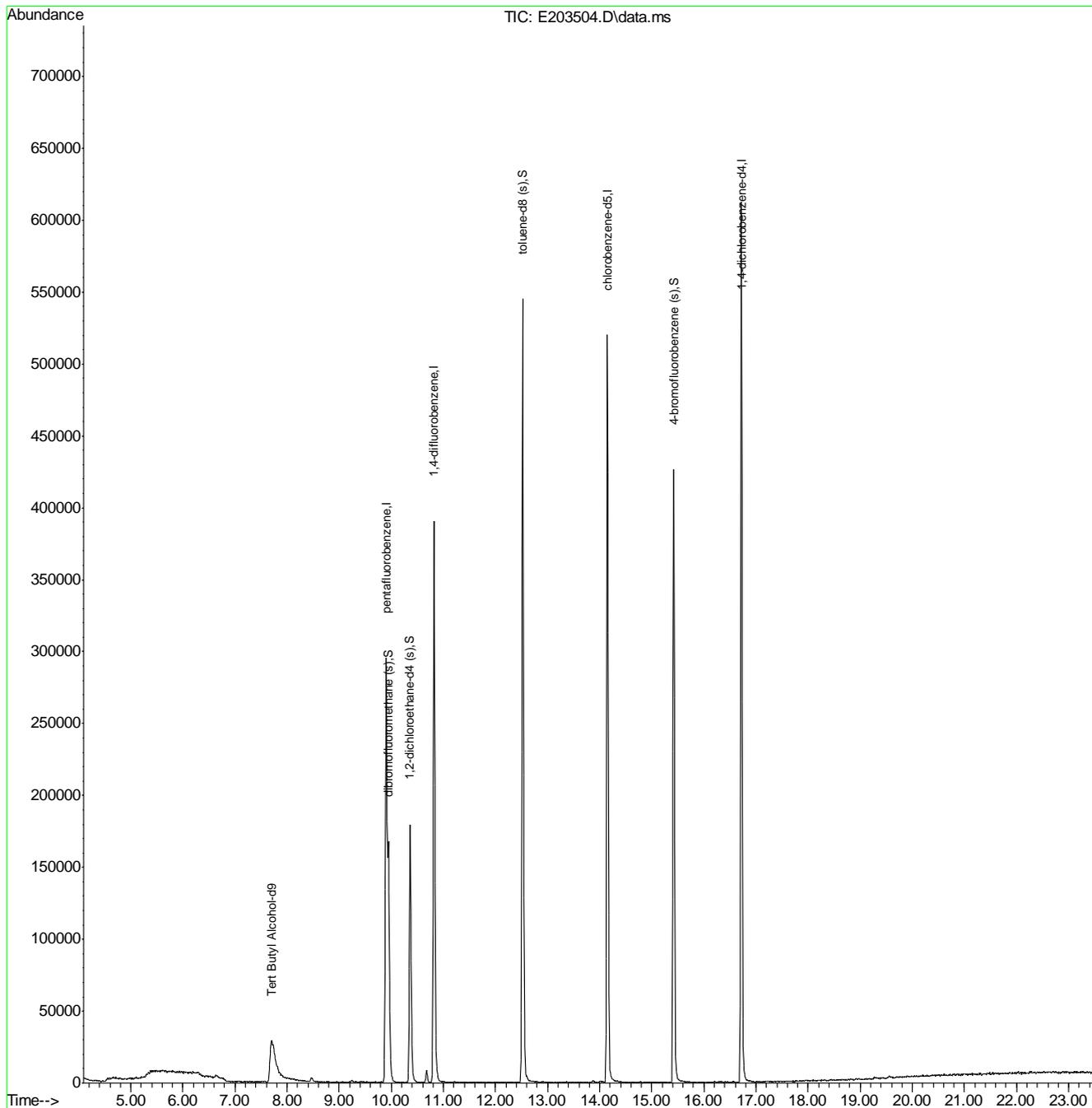
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\
 Data File : E203504.D
 Acq On : 22 May 2013 11:18 pm
 Operator : Oksanat
 Sample : mb
 Misc : MS48533,VE8944,5,,100,5,1
 ALS Vial : 31 Sample Multiplier: 1

Quant Time: May 23 11:19:17 2013
 Quant Method : C:\MSDCHEM\1\METHODS\ME8922.M
 Quant Title : SW846 8260B,ZB624 60m x 0.25mm x 1.4um
 QLast Update : Fri May 10 15:40:15 2013
 Response via : Initial Calibration



7.2.1
7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI7452\
 Data File : I184488.D
 Acq On : 21 May 2013 8:40 pm
 Operator : SCOTTM
 Sample : MB1
 Misc : MS48651,VI7452,,,,,1
 ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 22 09:24:11 2013
 Quant Method : C:\MSDCHEM\1\METHODS\MI7422.M
 Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
 QLast Update : Tue May 21 17:53:40 2013
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.186	65	48010	50.00	ug/L	-0.01
5) pentafluorobenzene	9.440	168	174662	50.00	ug/L	-0.01
46) 1,4-difluorobenzene	10.360	114	252217	50.00	ug/L	0.00
75) chlorobenzene-d5	13.525	117	197301	50.00	ug/L	-0.01
90) 1,4-dichlorobenzene-d4	15.889	152	93381	50.00	ug/L	0.00

System Monitoring Compounds

43) dibromofluoromethane (s)	9.476	113	68375	51.22	ug/L	0.00
Spiked Amount	50.000	Range 70 - 130	Recovery	=	102.44%	
47) 1,2-dichloroethane-d4...	9.900	65	67426	51.37	ug/L	0.00
Spiked Amount	50.000	Range 70 - 122	Recovery	=	102.74%	
76) toluene-d8 (s)	12.013	98	229461	52.18	ug/L	0.00
Spiked Amount	50.000	Range 81 - 127	Recovery	=	104.36%	
91) 4-bromofluorobenzene (s)	14.691	95	76080	56.73	ug/L	0.00
Spiked Amount	50.000	Range 66 - 132	Recovery	=	113.46%	

Target Compounds	Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

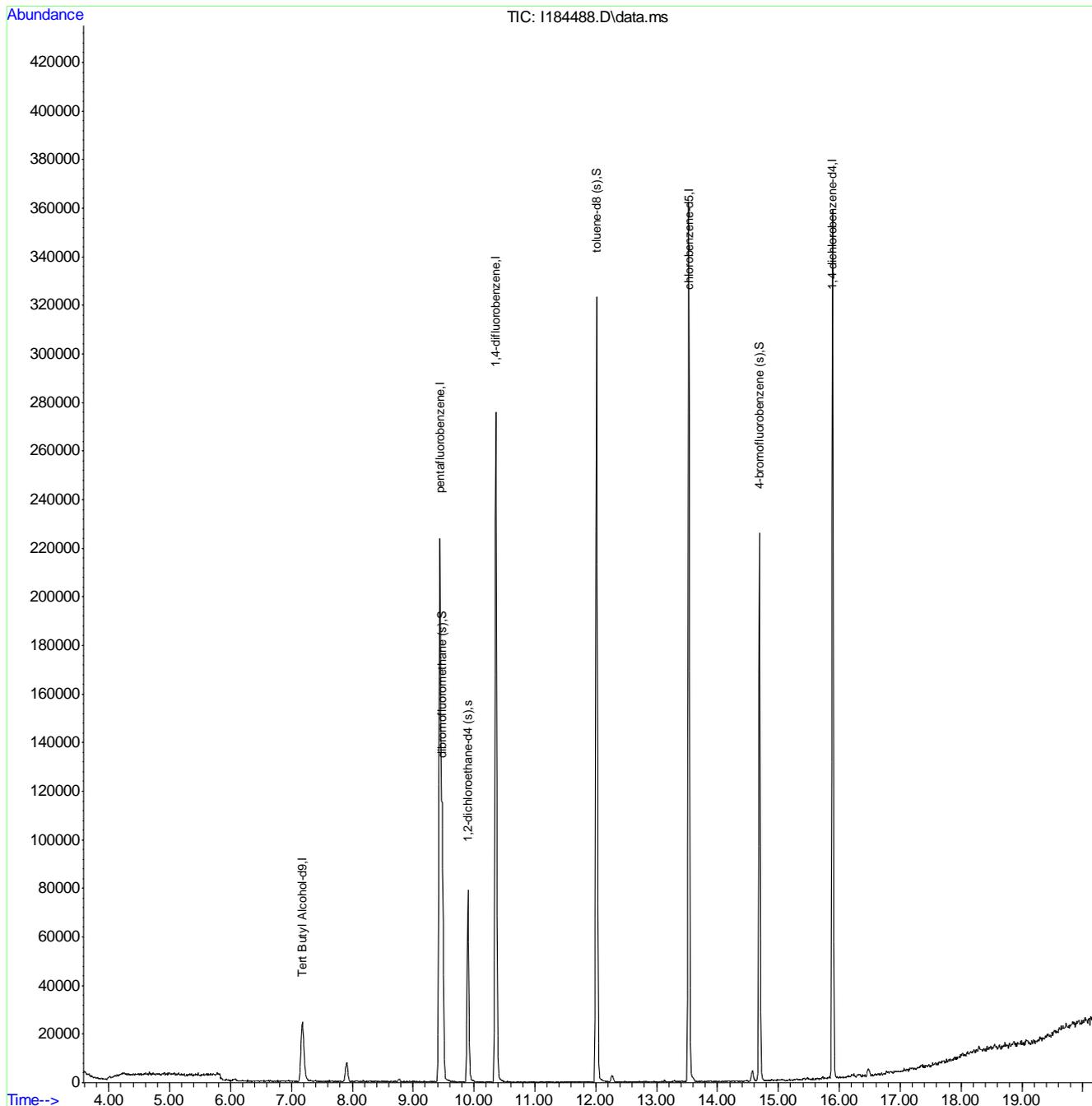
7.22

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\VI7452\
 Data File : I184488.D
 Acq On : 21 May 2013 8:40 pm
 Operator : SCOTTM
 Sample : MB1
 Misc : MS48651,VI7452,,,,,1
 ALS Vial : 22 Sample Multiplier: 1

Quant Time: May 22 09:24:11 2013
 Quant Method : C:\MSDCHEM\1\METHODS\MI7422.M
 Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um
 QLast Update : Tue May 21 17:53:40 2013
 Response via : Initial Calibration



7.22
7

LSC Area Percent Report

Data Path : C:\msdchem\1\DATA\VI7452\
 Data File : I184488.D
 Acq On : 21 May 2013 8:40 pm
 Operator : SCOTTM
 Sample : MB1
 Misc : MS48651,VI7452,,,,,1
 ALS Vial : 22 Sample Multiplier: 1

Integration Parameters: RTEINT.P

Integrator: RTE
 Smoothing : ON Filtering: 5
 Sampling : 1 Min Area: 10 Area counts
 Start Thrs: 0.05 Max Peaks: 100
 Stop Thrs : 0.01 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
 Peak separation: 5

Method : C:\MSDCHEM\1\METHODS\MI7422.M
 Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um

Signal : TIC: I18448

peak #	R.T. min	first scan	max scan	last scan	PK TY	peak height	corr. area	corr. % max.	% of total
1	3.906	60	62	70	rVB2	715	596	0.08%	0.016%
2	4.011	74	82	87	rBV6	1317	3790	0.53%	0.099%
3	4.168	111	112	114	rBV2	698	491	0.07%	0.013%
4	5.674	398	400	407	rBV7	1038	1622	0.23%	0.043%
5	5.925	446	448	458	rVB5	651	937	0.13%	0.025%
6	6.009	462	464	466	rBV	532	499	0.07%	0.013%
7	6.040	466	470	472	rBV3	773	782	0.11%	0.020%
8	6.061	472	474	484	rVV5	818	1466	0.21%	0.038%
9	6.176	494	496	499	rBV2	292	364	0.05%	0.010%
10	6.281	514	516	518	rBV3	466	399	0.06%	0.010%
11	6.375	531	534	538	rBV3	411	470	0.07%	0.012%
12	6.500	553	558	560	rBV	386	634	0.09%	0.017%
13	6.532	561	564	566	rVB2	482	417	0.06%	0.011%
14	6.547	566	567	571	rBV2	497	407	0.06%	0.011%
15	6.589	571	575	577	rBV	351	432	0.06%	0.011%
16	6.919	635	638	641	rBV	377	455	0.06%	0.012%
17	7.008	651	655	657	rVB	392	410	0.06%	0.011%
18	7.023	657	658	663	rBV2	360	395	0.06%	0.010%
19	7.180	675	688	711	rBV	24607	89123	12.52%	2.336%
20	7.400	727	730	733	rVB3	545	514	0.07%	0.013%
21	7.520	751	753	756	rBV2	482	545	0.08%	0.014%
22	7.552	758	759	763	rVV	402	360	0.05%	0.009%
23	7.630	771	774	776	rBV2	563	385	0.05%	0.010%
24	7.677	780	783	785	rVV2	382	455	0.06%	0.012%
25	7.913	813	828	839	rBV2	7892	21263	2.99%	0.557%
26	8.179	876	879	882	rVV2	584	486	0.07%	0.013%
27	8.237	886	890	893	rBV3	423	369	0.05%	0.010%
28	8.383	915	918	921	rBV2	499	545	0.08%	0.014%
29	8.776	986	993	997	rBV4	1081	2001	0.28%	0.052%
30	8.854	1003	1008	1010	rVB2	589	737	0.10%	0.019%
31	8.880	1010	1013	1014	rBV	397	364	0.05%	0.010%
32	8.906	1014	1018	1020	rBV2	472	519	0.07%	0.014%
33	9.189	1070	1072	1075	rVB2	382	360	0.05%	0.009%
34	9.346	1099	1102	1107	rVB2	415	441	0.06%	0.012%

LSC Area Percent Report

Data Path : C:\msdchem\1\DATA\VI7452\
 Data File : I184488.D
 Acq On : 21 May 2013 8:40 pm
 Operator : SCOTTM
 Sample : MB1
 Misc : MS48651,VI7452,,,,,1
 ALS Vial : 22 Sample Multiplier: 1

Integration Parameters: RTEINT.P

Integrator: RTE
 Smoothing : ON Filtering: 5
 Sampling : 1 Min Area: 10 Area counts
 Start Thrs: 0.05 Max Peaks: 100
 Stop Thrs : 0.01 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
 Peak separation: 5

Method : C:\MSDCHEM\1\METHODS\MI7422.M
 Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um

35	9.440	1107	1120	1142	rBV2	223752	711856	100.00%	18.658%
36	9.654	1155	1161	1163	rVB3	506	758	0.11%	0.020%
37	9.686	1165	1167	1170	rVB	549	446	0.06%	0.012%
38	9.900	1199	1208	1223	rBV2	79170	170680	23.98%	4.474%
39	10.360	1284	1296	1315	rBV	276065	574621	80.72%	15.061%
40	10.486	1319	1320	1327	rVV2	760	930	0.13%	0.024%
41	10.549	1330	1332	1340	rVV3	394	692	0.10%	0.018%
42	10.721	1360	1365	1368	rVV2	291	377	0.05%	0.010%
43	11.124	1439	1442	1446	rVB2	353	381	0.05%	0.010%
44	11.171	1446	1451	1455	rBV2	348	557	0.08%	0.015%
45	11.202	1455	1457	1461	rVB2	367	375	0.05%	0.010%
46	11.297	1473	1475	1480	rBV	354	393	0.06%	0.010%
47	12.013	1603	1612	1640	rBV	323257	593731	83.41%	15.562%
48	12.175	1640	1643	1645	rVV2	532	529	0.07%	0.014%
49	12.264	1651	1660	1672	rVB3	2722	7636	1.07%	0.200%
50	12.353	1672	1677	1678	rVB	291	383	0.05%	0.010%
51	12.411	1683	1688	1692	rVB2	261	441	0.06%	0.012%
52	12.479	1696	1701	1709	rVB3	779	1241	0.17%	0.033%
53	12.798	1759	1762	1766	rVV3	332	492	0.07%	0.013%
54	12.829	1766	1768	1776	rVB	516	957	0.13%	0.025%
55	12.876	1776	1777	1781	rBV3	420	440	0.06%	0.012%
56	12.955	1789	1792	1796	rVB2	396	374	0.05%	0.010%
57	13.038	1806	1808	1813	rBV2	397	577	0.08%	0.015%
58	13.085	1813	1817	1821	rVB3	351	410	0.06%	0.011%
59	13.122	1821	1824	1831	rBV4	755	1263	0.18%	0.033%
60	13.185	1834	1836	1842	rVB4	355	537	0.08%	0.014%
61	13.232	1842	1845	1848	rBV3	354	404	0.06%	0.011%
62	13.294	1848	1857	1859	rBV5	645	1106	0.16%	0.029%
63	13.420	1875	1881	1886	rBV4	640	1570	0.22%	0.041%
64	13.525	1893	1901	1926	rBV	362230	610854	85.81%	16.011%
65	13.729	1939	1940	1947	rVB3	507	478	0.07%	0.013%
66	13.854	1960	1964	1965	rBV	385	403	0.06%	0.011%
67	14.131	2010	2017	2018	rBV3	418	688	0.10%	0.018%
68	14.152	2018	2021	2024	rBV3	515	497	0.07%	0.013%
69	14.189	2025	2028	2030	rVB3	405	399	0.06%	0.010%
70	14.215	2030	2033	2037	rBV3	450	407	0.06%	0.011%
71	14.252	2037	2040	2045	rBV2	303	446	0.06%	0.012%

LSC Area Percent Report

Data Path : C:\msdchem\1\DATA\VI7452\
 Data File : I184488.D
 Acq On : 21 May 2013 8:40 pm
 Operator : SCOTTM
 Sample : MB1
 Misc : MS48651,VI7452,,,,,1
 ALS Vial : 22 Sample Multiplier: 1

Integration Parameters: RTEINT.P

Integrator: RTE
 Smoothing : ON Filtering: 5
 Sampling : 1 Min Area: 10 Area counts
 Start Thrs: 0.05 Max Peaks: 100
 Stop Thrs : 0.01 Peak Location: TOP

If leading or trailing edge < 100 prefer < Baseline drop else tangent >
 Peak separation: 5

Method : C:\MSDCHEM\1\METHODS\MI7422.M
 Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um

72	14.461	2074	2080	2082	rBV3	276	556	0.08%	0.015%
73	14.487	2082	2085	2089	rVV3	560	607	0.09%	0.016%
74	14.576	2089	2102	2109	rVV5	4378	10107	1.42%	0.265%
75	14.691	2114	2124	2138	rVV	225689	371028	52.12%	9.725%
76	14.874	2153	2159	2160	rVV3	608	613	0.09%	0.016%
77	14.890	2161	2162	2168	rVB4	591	726	0.10%	0.019%
78	14.952	2168	2174	2176	rBV5	478	626	0.09%	0.016%
79	14.979	2178	2179	2183	rBV2	663	494	0.07%	0.013%
80	15.062	2191	2195	2204	rVB5	673	1228	0.17%	0.032%
81	15.230	2224	2227	2228	rVB2	489	373	0.05%	0.010%
82	15.282	2235	2237	2239	rBV	496	419	0.06%	0.011%
83	15.402	2258	2260	2262	rBV3	624	446	0.06%	0.012%
84	15.476	2267	2274	2276	rVV4	810	1171	0.16%	0.031%
85	15.564	2290	2291	2296	rBV4	590	617	0.09%	0.016%
86	15.632	2301	2304	2311	rBV4	705	1313	0.18%	0.034%
87	15.679	2311	2313	2315	rBV3	591	387	0.05%	0.010%
88	15.716	2317	2320	2321	rBV3	758	578	0.08%	0.015%
89	15.758	2326	2328	2335	rBV6	603	833	0.12%	0.022%
90	15.805	2335	2337	2339	rBV3	813	564	0.08%	0.015%
91	15.836	2340	2343	2345	rVB2	685	511	0.07%	0.013%
92	15.889	2345	2353	2366	rBV	357723	583063	81.91%	15.283%
93	16.014	2372	2377	2380	rBV6	649	969	0.14%	0.025%
94	16.145	2399	2402	2404	rVB2	788	758	0.11%	0.020%
95	16.208	2411	2414	2417	rBV4	595	883	0.12%	0.023%
96	16.297	2428	2431	2434	rBV3	781	1134	0.16%	0.030%
97	16.380	2446	2447	2453	rBV3	1044	1174	0.16%	0.031%
98	16.474	2457	2465	2475	rBV2	3376	10069	1.41%	0.264%
99	16.637	2493	2496	2500	rBV4	1067	1608	0.23%	0.042%
100	16.773	2520	2522	2524	rBV2	1395	995	0.14%	0.026%

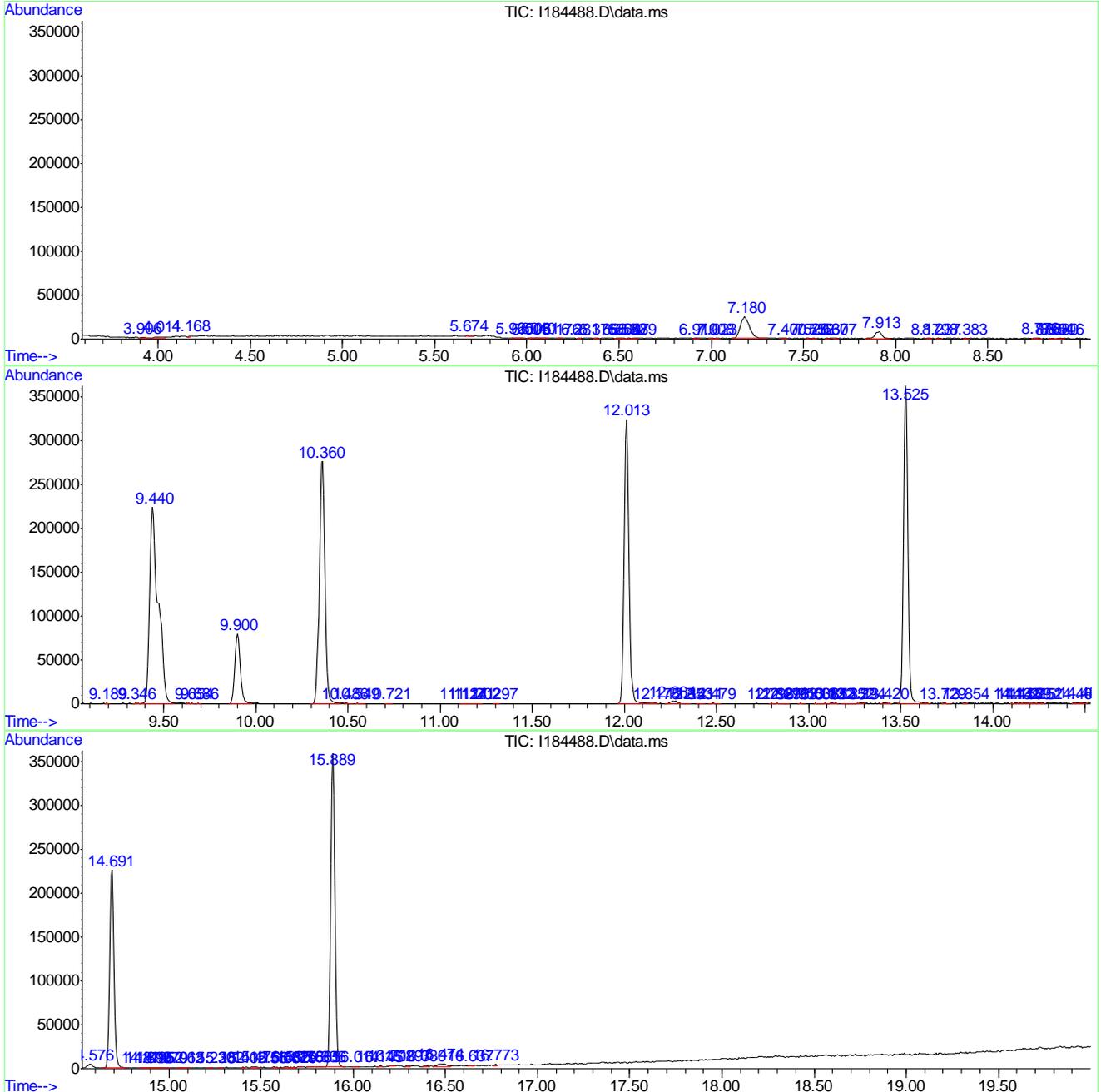
Sum of corrected areas: 3815212

LSC Report - Integrated Chromatogram

Data Path : C:\msdchem\1\DATA\VI7452\
 Data File : I184488.D
 Acq On : 21 May 2013 8:40 pm
 Operator : SCOTTM
 Sample : MB1
 Misc : MS48651,VI7452,,,,,1
 ALS Vial : 22 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\MI7422.M
 Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um

TIC Library : C:\Database\NIST08.L
 TIC Integration Parameters: LSCINT.P



7.2.3
7

Tentatively Identified Compound (LSC) summary

Data Path : C:\msdchem\1\DATA\VI7452\
Data File : I184488.D
Acq On : 21 May 2013 8:40 pm
Operator : SCOTTM
Sample : MB1
Misc : MS48651,VI7452,,,,,1
ALS Vial : 22 Sample Multiplier: 1

Quant Method : C:\MSDCHEM\1\METHODS\MI7422.M
Quant Title : Method SW846 8260B, ZB624 60m x 0.25mm x 1.4um

TIC Library : C:\Database\NIST08.L
TIC Integration Parameters: LSCINT.P

TIC Top Hit name	RT	EstConc	Units	Response	--Internal Standard--			
					#	RT	Resp	Conc

No Library Search Compounds Detected

7.2.3
7

Misc. Forms

Custody Documents and Other Forms

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

- Chain of Custody
- Sample Tracking Chronicle
- Internal Chain of Custody



CHAIN OF CUSTODY

PAGE OF

2235 Route 130, Dayton, NJ 08810
 TEL: 732-329-0200 FAX: 732-329-3499/3480
 www.accutest.com

FED-EX Tracking #		Bottle Order Control #																																			
Accutest Quote #		Accutest Job # JB37361																																			
Client / Reporting Information		Project Information																																			
Company Name: Accutest Laboratories		Project Name: Marcus Hook Refinery																																			
Street Address: 2235 Route 130		Billing Information (If different from Report to)																																			
City: Dayton State: NJ Zip: 08810	City: _____ State: _____	Company Name: _____																																			
Project Contact: Kristin Beebe	E-mail: _____	Project # _____																																			
Phone #: 732-355-4559	Fax # _____	Client Purchase Order # _____																																			
Sampler(s) Name(s)	Phone _____	Project Manager _____																																			
Attention: _____		Matrix Codes																																			
Requested Analysis (see TEST CODE sheet)		Matrix Codes																																			
<table border="1"> <tr> <th>Requested Analysis</th> <th>Matrix Codes</th> </tr> <tr> <td>%SOL</td> <td>DW - Drinking Water</td> </tr> <tr> <td>V8011EDB</td> <td>GW - Ground Water</td> </tr> <tr> <td>B8270SL</td> <td>WW - Water</td> </tr> <tr> <td>PB</td> <td>SW - Surface Water</td> </tr> <tr> <td>METDIG</td> <td>SO - Soil</td> </tr> <tr> <td></td> <td>SL - Sludge</td> </tr> <tr> <td></td> <td>SED-Sediment</td> </tr> <tr> <td></td> <td>Oil - Oil</td> </tr> <tr> <td></td> <td>LIQ - Other Liquid</td> </tr> <tr> <td></td> <td>AIR - Air</td> </tr> <tr> <td></td> <td>SOL - Other Solid</td> </tr> <tr> <td></td> <td>WP - Wipe</td> </tr> <tr> <td></td> <td>FB-Field Blank</td> </tr> <tr> <td></td> <td>EB-Equipment Blank</td> </tr> <tr> <td></td> <td>RB- Rinse Blank</td> </tr> <tr> <td></td> <td>TB-Trip Blank</td> </tr> </table>		Requested Analysis	Matrix Codes	%SOL	DW - Drinking Water	V8011EDB	GW - Ground Water	B8270SL	WW - Water	PB	SW - Surface Water	METDIG	SO - Soil		SL - Sludge		SED-Sediment		Oil - Oil		LIQ - Other Liquid		AIR - Air		SOL - Other Solid		WP - Wipe		FB-Field Blank		EB-Equipment Blank		RB- Rinse Blank		TB-Trip Blank	LAB USE ONLY	
Requested Analysis	Matrix Codes																																				
%SOL	DW - Drinking Water																																				
V8011EDB	GW - Ground Water																																				
B8270SL	WW - Water																																				
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	Oil - Oil																																				
	LIQ - Other Liquid																																				
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	EB-Equipment Blank																																				
	RB- Rinse Blank																																				
	TB-Trip Blank																																				
Accutest Sample #	Field ID / Point of Collection	MEOH/ID Vial #	Collection																																		
			Date Time Sampled by Matrix # of bottles																																		
1			5/17/2013 9:00 Soil 2																																		
2			5/17/2013 9:30 Soil 2																																		
3			5/17/2013 9:00 Soil 2																																		
4			5/17/2013 14:30 Soil 2																																		
Turnaround Time (Business days)		Data Deliverable Information																																			
<input checked="" type="checkbox"/> Std. 10 Business Days <input type="checkbox"/> 5 Day RUSH <input type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY <input type="checkbox"/> other _____ <small>Emergency & Rush-TAT Data available VIA Lablink</small>		Approved By (Accutest PM): / Date: _____ <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> NYASP Category A <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> NYASP Category B <input type="checkbox"/> FULL T1 (Level 3+4) <input type="checkbox"/> State Forms <input checked="" type="checkbox"/> NJ Reduced <input type="checkbox"/> EDD Format _____ <input type="checkbox"/> Commercial "C" <input type="checkbox"/> Other _____ <small>Commercial "A" = Results Only Commercial "B" = Results + QC Summary NJ Reduced = Results + QC Summary + Partial Raw data</small>																																			
		Comments / Special Instructions																																			
		Please send 300ml jar and 60ml jar to ALNE only. Methanol kits to remain here for analysis.																																			
Sample Custody must be documented below each time samples change possession, including courier delivery.																																					
Relinquished by Sample #	Date Time	Received By:	Relinquished By:																																		
1	5-29-13 1700	1 FEDEX	2 FEDEX																																		
3		3	4																																		
5		5	4																																		
Custody Seal # 642		<input type="checkbox"/> Intact	Preserved where applicable																																		
		<input type="checkbox"/> Not intact	On Ice <input checked="" type="checkbox"/>																																		
			Cooler Temp. 2:1																																		

8.1
8

JB37361: Chain of Custody
Page 1 of 2
Accutest Labs of New England, Inc.

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JB37361 **Client:** ACNJ **Immediate Client Services Action Required:** No
Date / Time Received: 5/30/2013 **Delivery Method:** _____ **Client Service Action Required at Login:** No
Project: SUB **No. Coolers:** 1 **Airbill #'s:** _____

Cooler Security Y or N Y or N
 1. Custody Seals Present: 3. COC Present:
 2. Custody Seals Intact: 4. Smpl Dates/Time OK

Cooler Temperature Y or N
 1. Temp criteria achieved:
 2. Cooler temp verification: _____ Infared gun
 3. Cooler media: _____ Ice (bag)

Quality Control Preservation Y or N N/A
 1. Trip Blank present / cooler:
 2. Trip Blank listed on COC:
 3. Samples preserved properly:
 4. VOCs headspace free:

Sample Integrity - Documentation Y or N
 1. Sample labels present on bottles:
 2. Container labeling complete:
 3. Sample container label / COC agree:

Sample Integrity - Condition Y or N
 1. Sample recvd within HT:
 2. All containers accounted for:
 3. Condition of sample: _____ Intact

Sample Integrity - Instructions Y or N N/A
 1. Analysis requested is clear:
 2. Bottles received for unspecified tests:
 3. Sufficient volume recvd for analysis:
 4. Compositing instructions clear:
 5. Filtering instructions clear:

Comments

Internal Sample Tracking Chronicle

Accutest New Jersey

Job No: JB37361

AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA
 Project No: AQTPAW56417

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB37361-1 Collected: 17-MAY-13 09:00 By: LM Received: 17-MAY-13 By: AOI5_MW-457_0-1_051713						
JB37361-1	SM21 2540 B MOD.	30-MAY-13	HS			%SOL
JB37361-1	SW846 8011	31-MAY-13 10:28	CZ	30-MAY-13 AJ		V8011EDB
JB37361-1	SW846 6010C	31-MAY-13 11:49	EAL	30-MAY-13 DA		PB
JB37361-1	SW846 8270C	02-JUN-13 14:20	AA	31-MAY-13 FC		B8270SL
JB37361-2 Collected: 17-MAY-13 09:30 By: LM Received: 17-MAY-13 By: AOI5_MW-457_2-3_051713						
JB37361-2	SM21 2540 B MOD.	30-MAY-13	HS			%SOL
JB37361-2	SW846 8011	31-MAY-13 10:56	CZ	30-MAY-13 AJ		V8011EDB
JB37361-2	SW846 6010C	31-MAY-13 11:53	EAL	30-MAY-13 DA		PB
JB37361-2	SW846 8270C	02-JUN-13 14:43	AA	31-MAY-13 FC		B8270SL
JB37361-3 Collected: 17-MAY-13 09:00 By: LM Received: 17-MAY-13 By: AOI5_MW-454_0-2_51713						
JB37361-3	SM21 2540 B MOD.	30-MAY-13	HS			%SOL
JB37361-3	SW846 8011	31-MAY-13 11:24	CZ	30-MAY-13 AJ		V8011EDB
JB37361-3	SW846 6010C	31-MAY-13 11:57	EAL	30-MAY-13 DA		PB
JB37361-3	SW846 8270C	02-JUN-13 15:05	AA	31-MAY-13 FC		B8270SL
JB37361-4 Collected: 17-MAY-13 14:30 By: LM Received: 17-MAY-13 By: AOI5_MW-454_8-10_051713						
JB37361-4	SM21 2540 B MOD.	30-MAY-13	HS			%SOL
JB37361-4	SW846 8011	31-MAY-13 11:53	CZ	30-MAY-13 AJ		V8011EDB
JB37361-4	SW846 6010C	31-MAY-13 12:02	EAL	30-MAY-13 DA		PB
JB37361-4	SW846 8270C	02-JUN-13 15:28	AA	31-MAY-13 FC		B8270SL

8.2
8

Accutest Internal Chain of Custody

Job Number: JB37361
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA
Received: 05/17/13

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB37361-1.1	Walk In Ref #5	Mehdi Abdolrahim	05/30/13 17:02	Retrieve from Storage
JB37361-1.1	Mehdi Abdolrahim	Walk In Ref #5	05/30/13 18:00	Return to Storage
JB37361-1.1	Walk In Ref #5	Thomas Abruzzise	05/31/13 13:33	Retrieve from Storage
JB37361-1.1	Thomas Abruzzise	Walk In Ref #5	05/31/13 22:16	Return to Storage
JB37361-1.2	Walk In Ref #5	Dorina Antonovici	05/30/13 13:54	Retrieve from Storage
JB37361-1.2	Dorina Antonovici	Walk In Ref #5	05/30/13 14:08	Return to Storage
JB37361-1.2	Walk In Ref #5	Chris Cataldo	05/30/13 17:34	Retrieve from Storage
JB37361-1.2	Chris Cataldo	Walk In Ref #5	05/30/13 17:35	Return to Storage
JB37361-2.1	Walk In Ref #5	Mehdi Abdolrahim	05/30/13 17:02	Retrieve from Storage
JB37361-2.1	Mehdi Abdolrahim	Walk In Ref #5	05/30/13 18:00	Return to Storage
JB37361-2.1	Walk In Ref #5	Thomas Abruzzise	05/31/13 13:33	Retrieve from Storage
JB37361-2.1	Thomas Abruzzise	Walk In Ref #5	05/31/13 22:16	Return to Storage
JB37361-2.2	Walk In Ref #5	Dorina Antonovici	05/30/13 13:54	Retrieve from Storage
JB37361-2.2	Dorina Antonovici	Walk In Ref #5	05/30/13 14:08	Return to Storage
JB37361-2.2	Walk In Ref #5	Chris Cataldo	05/30/13 17:34	Retrieve from Storage
JB37361-2.2	Chris Cataldo	Walk In Ref #5	05/30/13 17:35	Return to Storage
JB37361-3.1	Walk In Ref #5	Mehdi Abdolrahim	05/30/13 17:02	Retrieve from Storage
JB37361-3.1	Mehdi Abdolrahim	Walk In Ref #5	05/30/13 18:00	Return to Storage
JB37361-3.1	Walk In Ref #5	Thomas Abruzzise	05/31/13 13:33	Retrieve from Storage
JB37361-3.1	Thomas Abruzzise	Walk In Ref #5	05/31/13 22:16	Return to Storage
JB37361-3.2	Walk In Ref #5	Dorina Antonovici	05/30/13 13:54	Retrieve from Storage
JB37361-3.2	Dorina Antonovici	Walk In Ref #5	05/30/13 14:08	Return to Storage
JB37361-3.2	Walk In Ref #5	Chris Cataldo	05/30/13 17:34	Retrieve from Storage
JB37361-3.2	Chris Cataldo	Walk In Ref #5	05/30/13 17:35	Return to Storage
JB37361-4.1	Walk In Ref #5	Mehdi Abdolrahim	05/30/13 17:02	Retrieve from Storage
JB37361-4.1	Mehdi Abdolrahim	Walk In Ref #5	05/30/13 18:00	Return to Storage
JB37361-4.1	Walk In Ref #5	Thomas Abruzzise	05/31/13 13:33	Retrieve from Storage
JB37361-4.1	Thomas Abruzzise	Walk In Ref #5	05/31/13 22:16	Return to Storage
JB37361-4.2	Walk In Ref #5	Dorina Antonovici	05/30/13 13:54	Retrieve from Storage
JB37361-4.2	Dorina Antonovici	Walk In Ref #5	05/30/13 14:08	Return to Storage
JB37361-4.2	Walk In Ref #5	Chris Cataldo	05/30/13 17:34	Retrieve from Storage
JB37361-4.2	Chris Cataldo	Walk In Ref #5	05/30/13 17:35	Return to Storage



GC/MS Semi-volatiles

QC Data Summaries

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Instrument Performance Checks (DFTPP)
- Internal Standard Area Summaries
- Surrogate Recovery Summaries
- Initial and Continuing Calibration Summaries

Method Blank Summary**Job Number:** JB37361**Account:** ALNJ Accutest New Jersey**Project:** AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP33425-MB	R31165.D	1	06/03/13	KR	05/31/13	OP33425	MSR1134

The QC reported here applies to the following samples:**Method:** SW846 8270C

JB37361-1, JB37361-2, JB37361-3, JB37361-4

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	98	34	ug/kg	
56-55-3	Benzo(a)anthracene	ND	98	38	ug/kg	
50-32-8	Benzo(a)pyrene	ND	98	23	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	98	23	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	98	44	ug/kg	
218-01-9	Chrysene	ND	98	40	ug/kg	
86-73-7	Fluorene	ND	98	35	ug/kg	
91-20-3	Naphthalene	ND	98	38	ug/kg	
85-01-8	Phenanthrene	ND	98	30	ug/kg	
129-00-0	Pyrene	ND	98	30	ug/kg	

CAS No.	Surrogate Recoveries	Limits	
367-12-4	2-Fluorophenol	80%	30-130%
4165-62-2	Phenol-d5	75%	30-130%
118-79-6	2,4,6-Tribromophenol	74%	30-130%
4165-60-0	Nitrobenzene-d5	68%	30-130%
321-60-8	2-Fluorobiphenyl	113%	30-130%
1718-51-0	Terphenyl-d14	82%	30-130%

CAS No.	Tentatively Identified Compounds	R. T.	Est. Conc.	Units	Q
	Total TIC, Semi-Volatile		0	ug/kg	

Blank Spike Summary

Job Number: JB37361
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP33425-BS	R31166.D	1	06/03/13	KR	05/31/13	OP33425	MSR1134

The QC reported here applies to the following samples:

Method: SW846 8270C

JB37361-1, JB37361-2, JB37361-3, JB37361-4

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
120-12-7	Anthracene	2460	1960	80	40-140
56-55-3	Benzo(a)anthracene	2460	2360	96	40-140
50-32-8	Benzo(a)pyrene	2460	1970	80	40-140
205-99-2	Benzo(b)fluoranthene	2460	2350	95	40-140
191-24-2	Benzo(g,h,i)perylene	2460	2200	89	40-140
218-01-9	Chrysene	2460	2170	88	40-140
86-73-7	Fluorene	2460	2190	89	40-140
91-20-3	Naphthalene	2460	1810	73	40-140
85-01-8	Phenanthrene	2460	2030	82	40-140
129-00-0	Pyrene	2460	2420	98	40-140

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	70%	30-130%
4165-62-2	Phenol-d5	71%	30-130%
118-79-6	2,4,6-Tribromophenol	80%	30-130%
4165-60-0	Nitrobenzene-d5	75%	30-130%
321-60-8	2-Fluorobiphenyl	69%	30-130%
1718-51-0	Terphenyl-d14	96%	30-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB37361

Account: ALNJ Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP33425-MS	R31167.D	1	06/03/13	KR	05/31/13	OP33425	MSR1134
OP33425-MSD	R31168.D	1	06/03/13	KR	05/31/13	OP33425	MSR1134
MC21295-1	R31169.D	1	06/04/13	KR	05/31/13	OP33425	MSR1134

The QC reported here applies to the following samples:

Method: SW846 8270C

JB37361-1, JB37361-2, JB37361-3, JB37361-4

CAS No.	Compound	MC21295-1 ug/kg	Spike Q ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
120-12-7	Anthracene	826	2950	3400	87	2630	62	26	40-140/30
56-55-3	Benzo(a)anthracene	2440	2950	5510	104	3930	51	33* a	40-140/30
50-32-8	Benzo(a)pyrene	2350	2950	4970	89	3690	46	30	40-140/30
205-99-2	Benzo(b)fluoranthene	2310	2950	4280	67	3470	40	21	40-140/30
191-24-2	Benzo(g,h,i)perylene	1540	2950	4360	96	3270	60	29	40-140/30
218-01-9	Chrysene	2600	2950	5970	114	4040	50	39* a	40-140/30
86-73-7	Fluorene	157	2950	2940	94	2470	80	17	40-140/30
91-20-3	Naphthalene	115	J 2950	1850	59	1790	58	3	40-140/30
85-01-8	Phenanthrene	1370	2950	4120	93	2960	55	33* a	40-140/30
129-00-0	Pyrene	4250	2950	7390	106	5200	33* b	35* a	40-140/30

CAS No.	Surrogate Recoveries	MS	MSD	MC21295-1	Limits
367-12-4	2-Fluorophenol	54%	58%	77%	30-130%
4165-62-2	Phenol-d5	59%	55%	73%	30-130%
118-79-6	2,4,6-Tribromophenol	85%	75%	89%	30-130%
4165-60-0	Nitrobenzene-d5	58%	58%	82%	30-130%
321-60-8	2-Fluorobiphenyl	67%	56%	81%	30-130%
1718-51-0	Terphenyl-d14	84%	82%	88%	30-130%

(a) High RPD due to possible matrix interference and/or sample non-homogeneity.

(b) Outside control limits due to possible matrix interference. Refer to Blank Spike.

* = Outside of Control Limits.

9.3.1
9

Instrument Performance Check (DFTPP)

Job Number: JB37361
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: MSR1128-DFTPP	Injection Date: 05/30/13
Lab File ID: R30967.D	Injection Time: 07:23
Instrument ID: GCMSR	

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
51	30.0 - 60.0% of mass 198	8712	39.1	Pass
68	Less than 2.0% of mass 69	0	0.00 (0.00) ^a	Pass
69	Mass 69 relative abundance	9649	43.3	Pass
70	Less than 2.0% of mass 69	0	0.00 (0.00) ^a	Pass
127	40.0 - 60.0% of mass 198	10803	48.5	Pass
197	Less than 1.0% of mass 198	91	0.41	Pass
198	Base peak, 100% relative abundance	22289	100.0	Pass
199	5.0 - 9.0% of mass 198	1599	7.17	Pass
275	10.0 - 30.0% of mass 198	5321	23.9	Pass
365	1.0 - 100.0% of mass 198	649	2.91	Pass
441	Present, but less than mass 443	2539	11.4 (85.0) ^b	Pass
442	40.0 - 100.0% of mass 198	15916	71.4	Pass
443	17.0 - 23.0% of mass 442	2986	13.4 (18.8) ^c	Pass

- (a) Value is % of mass 69
- (b) Value is % of mass 443
- (c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
MSR1128-ICC1128	R30970.D	05/30/13	08:31	01:08	Initial cal 50
MSR1128-IC1128	R30971.D	05/30/13	08:54	01:31	Initial cal 2
MSR1128-IC1128	R30972.D	05/30/13	09:17	01:54	Initial cal 5
MSR1128-IC1128	R30973.D	05/30/13	09:40	02:17	Initial cal 10
MSR1128-IC1128	R30974.D	05/30/13	10:03	02:40	Initial cal 20
MSR1128-IC1128	R30975.D	05/30/13	10:26	03:03	Initial cal 80
MSR1128-IC1128	R30976.D	05/30/13	10:49	03:26	Initial cal 120
MSR1128-IC1128	R30977.D	05/30/13	11:12	03:49	Initial cal 160
MSR1128-ICV1128	R30978.D	05/30/13	11:35	04:12	Initial cal verification 50
MSR1128-ICV1128	R30979.D	05/30/13	12:01	04:38	Initial cal verification 20
MSR1128-ICV1128	R30980.D	05/30/13	12:24	05:01	Initial cal verification 20
OP33361-MB	R30981.D	05/30/13	12:47	05:24	Method Blank
OP33361-BS	R30982.D	05/30/13	13:10	05:47	Blank Spike
ZZZZZZ	R30983.D	05/30/13	13:33	06:10	(unrelated sample)
OP33248-MB	R30984.D	05/30/13	13:56	06:33	Method Blank
OP33248-BS	R30985.D	05/30/13	14:19	06:56	Blank Spike
OP33248-MS	R30986.D	05/30/13	14:42	07:19	Matrix Spike
OP33248-MSD	R30987.D	05/30/13	15:05	07:42	Matrix Spike Duplicate
MC21000-8	R30988.D	05/30/13	15:28	08:05	(used for QC only; not part of job JB37361)

9.4.1
9

Instrument Performance Check (DFTPP)

Job Number: JB37361
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: MSR1128-DFTPP	Injection Date: 05/30/13
Lab File ID: R30967.D	Injection Time: 07:23
Instrument ID: GCMSR	

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	R30989.D	05/30/13	15:51	08:28	(unrelated sample)
ZZZZZZ	R30990.D	05/30/13	16:15	08:52	(unrelated sample)
ZZZZZZ	R30991.D	05/30/13	16:38	09:15	(unrelated sample)
ZZZZZZ	R30992.D	05/30/13	17:01	09:38	(unrelated sample)
ZZZZZZ	R30993.D	05/30/13	17:24	10:01	(unrelated sample)
ZZZZZZ	R30994.D	05/30/13	17:47	10:24	(unrelated sample)
ZZZZZZ	R30995.D	05/30/13	18:10	10:47	(unrelated sample)
ZZZZZZ	R30996.D	05/30/13	18:33	11:10	(unrelated sample)
ZZZZZZ	R30997.D	05/30/13	18:56	11:33	(unrelated sample)
ZZZZZZ	R30998.D	05/30/13	19:19	11:56	(unrelated sample)
ZZZZZZ	R30999.D	05/30/13	19:42	12:19	(unrelated sample)

9.4.1
9

Instrument Performance Check (DFTPP)

Job Number: JB37361
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: MSR1132-DFTPP	Injection Date: 06/02/13
Lab File ID: R31118.D	Injection Time: 09:33
Instrument ID: GCMSR	

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
51	30.0 - 60.0% of mass 198	4912	33.6	Pass
68	Less than 2.0% of mass 69	0	0.00 (0.00) ^a	Pass
69	Mass 69 relative abundance	5315	36.4	Pass
70	Less than 2.0% of mass 69	0	0.00 (0.00) ^a	Pass
127	40.0 - 60.0% of mass 198	6645	45.5	Pass
197	Less than 1.0% of mass 198	0	0.00	Pass
198	Base peak, 100% relative abundance	14617	100.0	Pass
199	5.0 - 9.0% of mass 198	1024	7.01	Pass
275	10.0 - 30.0% of mass 198	3877	26.5	Pass
365	1.0 - 100.0% of mass 198	494	3.38	Pass
441	Present, but less than mass 443	2127	14.6 (77.3) ^b	Pass
442	40.0 - 100.0% of mass 198	14337	98.1	Pass
443	17.0 - 23.0% of mass 442	2752	18.8 (19.2) ^c	Pass

- (a) Value is % of mass 69
- (b) Value is % of mass 443
- (c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
MSR1132-CC1128	R31120.D	06/02/13	10:46	01:13	Continuing cal 50
JB37361-1	R31129.D	06/02/13	14:20	04:47	AOI5_MW-457_0-1_051713
JB37361-2	R31130.D	06/02/13	14:43	05:10	AOI5_MW-457_2-3_051713
JB37361-3	R31131.D	06/02/13	15:05	05:32	AOI5_MW-454_0-2_51713
JB37361-4	R31132.D	06/02/13	15:28	05:55	AOI5_MW-454_8-10_051713
ZZZZZZ	R31133.D	06/02/13	15:51	06:18	(unrelated sample)
ZZZZZZ	R31134.D	06/02/13	16:14	06:41	(unrelated sample)

9.4.2
9

Instrument Performance Check (DFTPP)

Job Number: JB37361
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: MSR1134-DFTPP	Injection Date: 06/03/13
Lab File ID: R31160.D	Injection Time: 20:39
Instrument ID: GCMSR	

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
51	30.0 - 60.0% of mass 198	13388	35.5	Pass
68	Less than 2.0% of mass 69	251	0.66 (1.63) ^a	Pass
69	Mass 69 relative abundance	15373	40.7	Pass
70	Less than 2.0% of mass 69	0	0.00 (0.00) ^a	Pass
127	40.0 - 60.0% of mass 198	17742	47.0	Pass
197	Less than 1.0% of mass 198	0	0.00	Pass
198	Base peak, 100% relative abundance	37765	100.0	Pass
199	5.0 - 9.0% of mass 198	2654	7.03	Pass
275	10.0 - 30.0% of mass 198	9808	26.0	Pass
365	1.0 - 100.0% of mass 198	1175	3.11	Pass
441	Present, but less than mass 443	4926	13.0 (81.5) ^b	Pass
442	40.0 - 100.0% of mass 198	32046	84.9	Pass
443	17.0 - 23.0% of mass 442	6045	16.0 (18.9) ^c	Pass

- (a) Value is % of mass 69
- (b) Value is % of mass 443
- (c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
MSR1134-CC1128	R31161.D	06/03/13	21:02	00:23	Continuing cal 50
MSR1134-CC1128	R31162.D	06/03/13	21:26	00:47	Continuing cal 80
OP33401-MB	R31163.D	06/03/13	21:49	01:10	Method Blank
OP33401-BS	R31164.D	06/03/13	22:12	01:33	Blank Spike
OP33425-MB	R31165.D	06/03/13	22:35	01:56	Method Blank
OP33425-BS	R31166.D	06/03/13	22:59	02:20	Blank Spike
OP33425-MS	R31167.D	06/03/13	23:22	02:43	Matrix Spike
OP33425-MSD	R31168.D	06/03/13	23:46	03:07	Matrix Spike Duplicate
MC21295-1	R31169.D	06/04/13	00:10	03:31	(used for QC only; not part of job JB37361)
OP33401-MS	R31170.D	06/04/13	00:34	03:55	Matrix Spike
OP33401-MSD	R31171.D	06/04/13	00:58	04:19	Matrix Spike Duplicate
MC21213-1	R31172.D	06/04/13	01:22	04:43	(used for QC only; not part of job JB37361)
ZZZZZZ	R31173.D	06/04/13	01:46	05:07	(unrelated sample)
ZZZZZZ	R31174.D	06/04/13	02:11	05:32	(unrelated sample)
ZZZZZZ	R31175.D	06/04/13	02:35	05:56	(unrelated sample)
ZZZZZZ	R31176.D	06/04/13	02:59	06:20	(unrelated sample)
ZZZZZZ	R31177.D	06/04/13	03:23	06:44	(unrelated sample)
ZZZZZZ	R31178.D	06/04/13	03:48	07:09	(unrelated sample)
ZZZZZZ	R31179.D	06/04/13	04:12	07:33	(unrelated sample)

9.4.3
9

Instrument Performance Check (DFTPP)

Job Number: JB37361

Account: ALNJ Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: MSR1134-DFTPP	Injection Date: 06/03/13
Lab File ID: R31160.D	Injection Time: 20:39
Instrument ID: GCMSR	

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	R31180.D	06/04/13	04:36	07:57	(unrelated sample)
ZZZZZZ	R31181.D	06/04/13	05:00	08:21	(unrelated sample)
ZZZZZZ	R31182.D	06/04/13	05:24	08:45	(unrelated sample)
ZZZZZZ	R31183.D	06/04/13	05:48	09:09	(unrelated sample)
ZZZZZZ	R31184.D	06/04/13	06:12	09:33	(unrelated sample)
ZZZZZZ	R31185.D	06/04/13	06:35	09:56	(unrelated sample)
ZZZZZZ	R31186.D	06/04/13	06:59	10:20	(unrelated sample)
ZZZZZZ	R31187.D	06/04/13	07:22	10:43	(unrelated sample)
ZZZZZZ	R31188.D	06/04/13	07:46	11:07	(unrelated sample)
ZZZZZZ	R31189.D	06/04/13	08:09	11:30	(unrelated sample)
ZZZZZZ	R31190.D	06/04/13	08:33	11:54	(unrelated sample)
ZZZZZZ	R31191.D	06/04/13	08:57	12:18	(unrelated sample)

Semivolatiles Internal Standard Area Summary

Job Number: JB37361
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Check Std: MSR1132-CC1128	Injection Date: 06/02/13
Lab File ID: R31120.D	Injection Time: 10:46
Instrument ID: GCMSR	Method: SW846 8270C

	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT								
Check Std	57790	4.18	229831	5.23	130842	6.77	175735	8.16	210222	11.12	265871	12.71
Upper Limit ^a	115580	4.68	459662	5.73	261684	7.27	351470	8.66	420444	11.62	531742	13.21
Lower Limit ^b	28895	3.68	114916	4.73	65421	6.27	87868	7.66	105111	10.62	132936	12.21

Lab Sample ID	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
JB37361-1	70691	4.18	202970	5.23	114884	6.77	312845	8.16	249374	11.13	247966	12.74
JB37361-2	50971	4.18	199521	5.24	111681	6.77	275290	8.17	263283	11.14	341740	12.74
JB37361-3	52071	4.18	204621	5.24	114231	6.77	221488	8.17	249362	11.14	332272	12.74
JB37361-4	55369	4.19	226690	5.25	174974	6.79	285779	8.20	243018	11.15	231862	12.74
ZZZZZZ	47342	4.18	185796	5.24	102351	6.77	196787	8.17	210003	11.13	210817	12.73
ZZZZZZ	53339	4.18	210669	5.24	114332	6.77	221051	8.17	229744	11.13	221362	12.73

- IS 1** = 1,4-Dichlorobenzene-d4
- IS 2** = Naphthalene-d8
- IS 3** = Acenaphthene-D10
- IS 4** = Phenanthrene-d10
- IS 5** = Chrysene-d12
- IS 6** = Perylene-d12

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
 (b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

9.5.1
9

Semivolatiles Internal Standard Area Summary

Job Number: JB37361
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Check Std: MSR1134-CC1128	Injection Date: 06/03/13
Lab File ID: R31161.D	Injection Time: 21:02
Instrument ID: GCMSR	Method: SW846 8270C

	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT								
Check Std	59251	4.14	219205	5.19	135810	6.72	166457	8.11	190701	11.07	259547	12.65
Upper Limit ^a	118502	4.64	438410	5.69	271620	7.22	332914	8.61	381402	11.57	519094	13.15
Lower Limit ^b	29626	3.64	109603	4.69	67905	6.22	83229	7.61	95351	10.57	129774	12.15

Lab Sample ID	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
OP33401-MB	60644	4.14	179266	5.19	105231	6.72	192137	8.11	203087	11.06	199018	12.65
OP33401-BS	60445	4.14	247280	5.19	106250	6.72	187055	8.11	207700	11.06	259255	12.65
OP33425-MB	63095	4.14	257784	5.19	102967	6.72	203581	8.10	225674	11.06	218300	12.65
OP33425-BS	69913	4.14	255055	5.19	168539	6.72	329739	8.11	302358	11.07	233869	12.65
OP33425-MS	66049	4.14	239437	5.19	103842	6.72	199522	8.11	282810	11.07	303768	12.66
OP33425-MSD	75078	4.14	290178	5.19	180856	6.72	339140 ^c	8.11	335686	11.07	239812	12.67
MC21295-1	58612	4.14	187655	5.19	102034	6.72	192625	8.11	286508	11.07	212473	12.67
OP33401-MS	70813	4.14	205723	5.19	122724	6.72	212523	8.11	322057	11.07	339140	12.66
OP33401-MSD	53303	4.14	173317	5.19	106338	6.72	176349	8.11	245562	11.07	187805	12.66
MC21213-1	64949	4.14	185625	5.19	111511	6.72	203344	8.11	287278	11.07	240604	12.65
ZZZZZZ	54982	4.14	238533	5.19	98378	6.72	169578	8.11	185604	11.06	179190	12.65
ZZZZZZ	71343	4.14	181014	5.19	110361	6.72	187011	8.11	269359	11.06	279953	12.65
ZZZZZZ	48413	4.14	240480	5.19	144203	6.72	195906	8.11	208262	11.06	205155	12.65
ZZZZZZ	71679	4.14	258414	5.19	109826	6.72	190427	8.11	207269	11.06	203398	12.65
ZZZZZZ	67449	4.14	285032	5.19	111949	6.72	187135	8.10	207914	11.06	204224	12.65
ZZZZZZ	70077	4.14	221605	5.19	181175	6.72	305329	8.11	239442	11.12	248585	12.75
ZZZZZZ	43768	4.14	173539	5.19	102702	6.72	180643	8.11	192669	11.06	192827	12.65
ZZZZZZ	45929	4.14	181940	5.19	109545	6.72	187016	8.10	201705	11.06	199178	12.65
ZZZZZZ	47132	4.14	182179	5.19	109494	6.72	191156	8.10	209978	11.06	203648	12.65
ZZZZZZ	49448	4.14	189858	5.19	113724	6.72	196972	8.10	216165	11.06	209931	12.65
ZZZZZZ	49625	4.14	194381	5.20	108061	6.72	182614	8.11	201680	11.06	202398	12.65
ZZZZZZ	46967	4.14	183107	5.19	108027	6.72	190973	8.10	211293	11.06	203412	12.65
ZZZZZZ	50644	4.14	196208	5.19	112768	6.72	198724	8.10	216751	11.06	210805	12.65
ZZZZZZ	47645	4.14	183260	5.18	109132	6.72	192519	8.10	212991	11.06	206069	12.65
ZZZZZZ	47640	4.14	184235	5.18	108963	6.72	188311	8.10	202396	11.06	199599	12.65
ZZZZZZ	47560	4.14	182844	5.18	109536	6.72	193319	8.10	216516	11.06	204436	12.65
ZZZZZZ	47602	4.14	187529	5.18	111446	6.72	196800	8.10	220900	11.05	208087	12.65
ZZZZZZ	48628	4.14	188864	5.18	112537	6.72	196740	8.10	217804	11.06	211285	12.65
ZZZZZZ	47683	4.14	187890	5.18	112338	6.72	194287	8.10	213004	11.06	206917	12.65

- IS 1 = 1,4-Dichlorobenzene-d4
- IS 2 = Naphthalene-d8
- IS 3 = Acenaphthene-D10
- IS 4 = Phenanthrene-d10
- IS 5 = Chrysene-d12

9.5.2
9

Semivolatile Internal Standard Area Summary

Job Number: JB37361
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Check Std: MSR1134-CC1128	Injection Date: 06/03/13
Lab File ID: R31161.D	Injection Time: 21:02
Instrument ID: GCMSR	Method: SW846 8270C

Lab	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
Sample ID	AREA	RT										

IS 6 = Perylene-d12

- (a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.
- (b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.
- (c) Outside control limits due to possible matrix interference.

Semivolatiles Surrogate Recovery Summary

Job Number: JB37361

Account: ALNJ Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Method: SW846 8270C	Matrix: SO
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Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
JB37361-1	R31129.D	66.0	68.0	89.0
JB37361-2	R31130.D	71.0	73.0	73.0
JB37361-3	R31131.D	76.0	79.0	79.0
JB37361-4	R31132.D	71.0	61.0	112.0
OP33425-BS	R31166.D	75.0	69.0	96.0
OP33425-MB	R31165.D	68.0	113.0	82.0
OP33425-MS	R31167.D	58.0	67.0	84.0
OP33425-MSD	R31168.D	58.0	56.0	82.0

Surrogate Compounds	Recovery Limits
----------------------------	------------------------

S1 = Nitrobenzene-d5	30-130%
S2 = 2-Fluorobiphenyl	30-130%
S3 = Terphenyl-d14	30-130%

9.6.1
9

Initial Calibration Summary

Job Number: JB37361

Account: ALNJ Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: MSR1128-ICC1128

Lab FileID: R30970.D

Response Factor Report MSR

Method : C:\msdchem\1\met...\R130530_8270+.m (RTE Integrator)
Title : SW-864 Method 8270
Last Update : Thu May 30 14:53:36 2013
Response via : Initial Calibration

Calibration Files

160 =R30977.D 120 =R30976.D 80 =R30975.D 20 =R30974.D
5 =R30972.D 2 =R30971.D 10 =R30973.D 50 =R30970.D

Compound	160	120	80	20	5	2	10	50	Avg	%RSD
1) I 1,4-Dichlorobenzene-d										
2) N-nitrosodim	0.804	0.758	0.796	0.844	0.808		0.825	0.807	0.806	3.31
3) Pyridine	1.452	1.367	1.453	1.536	1.436		1.445	1.492	1.455	3.57
4) Aniline		0.735	0.804	0.829	0.848	0.835	0.829	0.790	0.810	4.76
5) 2-Fluorophen	1.324	1.295	1.322	1.391	1.282	1.275	1.296	1.286	1.309	2.89
6) bis(2-Chloro	0.982	0.966	1.006	1.049	1.022	0.999	1.047	1.020	1.011	2.89
7) Phenol-d5	1.714	1.664	1.688	1.757	1.612	1.614	1.694	1.716	1.683	3.00
8) Phenol	1.887	1.832	1.742	1.759	1.693	1.635	1.723	1.772	1.755	4.47
9) 2-Chlorophen	1.458	1.415	1.465	1.483	1.452	1.412	1.447	1.467	1.450	1.73
10) 1,3-Dichloro	1.556	1.498	1.555	1.580	1.542	1.569	1.587	1.584	1.559	1.87
11) 1,4-Dichloro	1.635	1.591	1.644	1.626	1.646	1.608	1.671	1.649	1.634	1.53
12) 1,2-Dichloro	1.502	1.438	1.494	1.478	1.505	1.438	1.516	1.518	1.486	2.17
13) Benzyl alcoh	0.825	0.791	0.814	0.790	0.707		0.700	0.817	0.778	6.76
14) bis(2-chloro	1.514	1.494	1.576	1.570	1.678	1.607	1.642	1.653	1.592	4.13
15) o-cresol	1.242	1.206	1.256	1.271	1.272	1.127	1.318	1.324	1.252	5.07
16) Acetophenone	1.980	1.910	1.927	1.940	1.976	1.991	1.971	2.018	1.964	1.83
17) Hexachloroet	0.616	0.589	0.611	0.584	0.596	0.590	0.605	0.628	0.602	2.56
18) N-Nitroso-di	0.962	0.920	0.974	0.951	0.936	0.978	0.974	1.005	0.963	2.74
19) m+p-cresols	1.362	1.308	1.330	1.321	1.321	1.274	1.364	1.383	1.333	2.65
20) 4-methylphen	1.362	1.308	1.330	1.321	1.321	1.274	1.364	1.383	1.333	2.65
21) I 1,4-Dichlorobenzene-d										
22) Benzaldehyde		3.741	3.832	3.823	3.758		3.802	3.789	3.791	0.94
23) I Naphthalene-d8										
24) Nitrobenzene	0.394	0.392	0.400	0.405	0.388	0.399	0.411	0.397	0.398	1.83
25) Nitrobenzene	0.391	0.383	0.400	0.400	0.401	0.391	0.413	0.399	0.397	2.20
26) Isophorone	0.679	0.668	0.693	0.694	0.689	0.702	0.721	0.707	0.694	2.38
27) 2-Nitropheno	0.202	0.196	0.201	0.201	0.184		0.196	0.202	0.197	3.23
28) 2,4-Dimethyl	0.371	0.360	0.377	0.382	0.367		0.397	0.377	0.376	3.14
29) bis(2-Chloro	0.408	0.394	0.411	0.405	0.407		0.429	0.415	0.410	2.56
30) Benzoic acid	0.295	0.283	0.285	0.241			0.206	0.282	0.265	13.07
31) 2,4-Dichloro	0.319	0.306	0.314	0.315	0.305		0.311	0.322	0.313	2.05
32) 1,2,4-Trichl	0.336	0.327	0.337	0.343	0.341	0.350	0.353	0.337	0.341	2.40
33) Naphthalene	1.070	1.054	1.072	1.072	1.065	1.062	1.115	1.089	1.075	1.78
34) 2,6-Dichloro	0.311	0.302	0.312	0.311	0.309		0.317	0.315	0.311	1.62
35) 4-Chloroanil	0.456	0.441	0.457	0.453	0.443		0.472	0.465	0.455	2.41
36) Hexachlorobu	0.198	0.196	0.204	0.205	0.201	0.200	0.205	0.205	0.202	1.75
37) 4-Chloro-3-m	0.315	0.304	0.304	0.297	0.313		0.313	0.317	0.309	2.37
38) 2-Methylnaph	0.720	0.710	0.699	0.709	0.790	0.728	0.745	0.741	0.730	3.94
39) 1-Methylnaph	0.695	0.680	0.675	0.690	0.732	0.738	0.717	0.701	0.704	3.30
40) 1,2,4,5-Tetr	0.367	0.364	0.362	0.379	0.399	0.387	0.398	0.373	0.378	3.90
41) I Naphthalene-d8a										
42) Caprolactam		0.125	0.120	0.107	0.082		0.100	0.112	0.108	14.21

Initial Calibration Summary

Job Number: JB37361

Sample: MSR1128-ICC1128

Account: ALNJ Accutest New Jersey

Lab FileID: R30970.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

43) I	Acenaphthene-d10	-----ISTD-----									
44)	Pentachloron	0.191	0.184	0.181	0.180		0.165	0.183	0.181	4.79	
45)	Hexachlorocy	0.389	0.373	0.375	0.356	0.317		0.353	0.388	0.364	6.90
46)	2,4,6-Trichl	0.416	0.399	0.387	0.406	0.393		0.413	0.422	0.405	3.14
47)	2,4,5-Trichl	0.450	0.423	0.403	0.412	0.405		0.428	0.450	0.424	4.62
48)	2-Fluorobiph	1.439	1.394	1.312	1.428	1.371	1.388	1.489	1.441	1.408	3.82
49)	2-Chloronaph	1.166	1.130	1.093	1.161	1.136	1.155	1.217	1.198	1.157	3.37
50)	Acenaphthyle	1.884	1.832	1.799	1.906	1.905	1.814	1.966	1.931	1.880	3.15
51)	Dimethylphth	1.387	1.331	1.293	1.363	1.362	1.350	1.422	1.414	1.365	3.13
52)	2,4-Dinitrot	0.413	0.396	0.418	0.400	0.374		0.400	0.426	0.404	4.24
53)	Acenaphthene	1.234	1.208	1.247	1.248	1.269	1.233	1.307	1.267	1.252	2.37
54)	2,4-Dinitrop	0.220	0.203	0.206	0.160				0.205	0.199	11.55
55)	Dibenzofuran	1.707	1.654	1.737	1.731	1.744	1.675	1.758	1.760	1.721	2.26
56)	2,6-Dinitrot	0.323	0.307	0.305	0.306	0.284		0.307	0.329	0.309	4.68
57)	4-Nitropheno	0.281	0.255	0.272	0.267			0.248	0.271	0.266	4.51
58)	2,3,4,6-Tetr	0.374	0.357	0.366	0.349	0.325		0.357	0.370	0.357	4.64
59)	Fluorene	1.370	1.327	1.389	1.397	1.391	1.386	1.398	1.398	1.382	1.73
60)	4-Chlorophen	0.678	0.660	0.689	0.695	0.693	0.690	0.714	0.697	0.690	2.26
61)	Diethylphtha	1.311	1.269	1.335	1.333	1.362	1.301	1.388	1.345	1.330	2.78
62)	2-nitroanili	0.418	0.399	0.390	0.406	0.373	0.332	0.393	0.426	0.392	7.53
63)	3-nitroanili	0.347	0.334	0.336	0.346			0.351	0.359	0.346	2.62
64)	4-nitroanili	0.343	0.335	0.358	0.349			0.344	0.357	0.348	2.54
65)	Acenaphthene-d10a	-----ISTD-----									
66)	1,1'-Bipheny	1.451	1.416	1.397	1.441	1.351	1.414	1.411	1.412	2.29	
67)	I Phenanthrene-d10	-----ISTD-----									
68)	4,6-Dinitro-	0.153	0.153	0.157	0.138			0.141	0.163	0.151	6.26
69)	n-Nitrosodip	0.548	0.560	0.572	0.587	0.569	0.559	0.674	0.604	0.584	6.90
70)	1,2-Diphenyl	0.837	0.836	0.868	0.780	0.885	0.877	0.901	0.921	0.863	5.14
71)	2,4,6-Tribr	0.131	0.127	0.123	0.125	0.117		0.143	0.134	0.129	6.67
72)	4-Bromopheny	0.240	0.229	0.239	0.244	0.232	0.253	0.272	0.248	0.245	5.52
73)	Hexachlorobe	0.255	0.244	0.254	0.255	0.258	0.256	0.296	0.266	0.261	5.93
74)	Pentachlorop	0.183	0.177	0.171	0.159			0.141	0.176	0.168	9.08
75)	Phenanthrene	1.157	1.152	1.163	1.181	1.185	1.195	1.198	1.211	1.180	1.79
76)	Anthracene	1.219	1.198	1.220	1.246	1.216	1.188	1.258	1.275	1.228	2.44
77)	Carbazole	1.080	1.084	1.114	1.100	1.092	1.040	1.140	1.147	1.100	3.15
78)	Di-n-butylph	1.274	1.324	1.352	1.346	1.114		1.382	1.389	1.311	7.27
79)	Fluoranthene	1.291	1.112	1.268	1.324	1.047	1.216	1.290	1.101	1.206	8.70
80)	I Phenanthrene-d10a	-----ISTD-----									
81)	Atrazine	0.199	0.198	0.184	0.158			0.178	0.195	0.185	8.40
82)	I Chrysene-d12	-----ISTD-----									
83)	Benzidine			0.531	0.586	0.497		0.522	0.491	0.525	7.17
84)	Pyrene	1.207	1.117	1.471	1.469	1.233	1.405	1.265	1.277	1.306	9.91
85)	Terphenyl-d1	0.846	0.787	1.010	0.990	0.825	0.965	0.893	0.892	0.901	8.99
86)	3,3-Dimethyl			0.594	0.629	0.646		0.660	0.601	0.626	4.53
87)	Butylbenzylp	0.493	0.461	0.603	0.519	0.516		0.531	0.538	0.523	8.37
88)	3,3'-Dichlor	0.437	0.416	0.464	0.445	0.421		0.447	0.472	0.443	4.61
89)	Benzo[a]anth	1.087	1.009	1.138	1.120	1.109	1.142	1.131	1.147	1.110	4.08
90)	Chrysene	1.055	1.087	1.085	1.068	1.067	1.047	1.132	1.102	1.080	2.55
91)	bis(2-Ethylh	0.760	0.776	0.750	0.739	0.718		0.864	0.774	0.769	6.06
92)	I Perylene-d12	-----ISTD-----									
93)	Di-n-octylph	1.378	1.329	1.333	1.279	1.206		1.285	1.369	1.311	4.55
94)	Benzo[b]fluo	1.384	1.371	1.344	1.194	1.265	1.111	1.275	1.227	1.271	7.38
95)	Benzo[k]fluo	1.114	1.076	1.150	1.242	1.061	0.907	1.218	1.317	1.136	11.19
96)	Benzo[a]pyre	1.147	1.132	1.156	1.109	1.079	1.025	1.117	1.164	1.116	4.12
97)	Indeno[1,2,3	1.205	1.314	1.399	1.559	1.472	1.195	1.304	1.633	1.385	11.54

Initial Calibration Summary

Job Number: JB37361

Sample: MSR1128-ICC1128

Account: ALNJ Accutest New Jersey

Lab FileID: R30970.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

98) Dibenz[a,h]a	0.987	1.065	1.133	1.262	1.171	0.901	1.041	1.317	1.110	12.55
99) Benzo[g,h,i]	0.955	1.061	1.140	1.282	1.210	0.889	1.095	1.325	1.120	13.57

(#) = Out of Range ### Number of calibration levels exceeded format ###

R130530_8270+.m

Fri May 31 12:37:32 2013

Initial Calibration Verification

Job Number: JB37361

Sample: MSR1128-ICV1128

Account: ALNJ Accutest New Jersey

Lab FileID: R30978.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\data\R13030\R30978.D Vial: 8
 Acq On : 30 May 2013 11:35 am Operator: kristinr
 Sample : ICV1128-50 Inst : MSR
 Misc : op33100,msr1128,,,,1,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : C:\msdchem\1\met...\R130530_8270+.m (RTE Integrator)
 Title : SW-864 Method 8270
 Last Update : Thu May 30 14:53:36 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	71	0.00	4.20
2	N-nitrosodimethylamine			-----NA-----			
3 T	Pyridine			-----NA-----			
4 T	Aniline			-----NA-----			
5 S	2-Fluorophenol	1.309	1.281	2.1	71	0.00	3.26
6 T	bis(2-Chloroethyl)ether			-----NA-----			
7 S	Phenol-d5	1.683	1.557	7.5	65	0.00	3.94
8 C	Phenol	1.755	1.681	4.2	68	0.00	3.95
9 M	2-Chlorophenol	1.450	1.408	2.9	68	0.00	4.07
10 T	1,3-Dichlorobenzene			-----NA-----			
11 C	1,4-Dichlorobenzene			-----NA-----			
12 T	1,2-Dichlorobenzene			-----NA-----			
13 T	Benzyl alcohol			-----NA-----			
14 T	bis(2-chloroisopropyl)eth			-----NA-----			
15 T	o-cresol	1.252	1.212	3.2	65	0.00	4.42
16 T	Acetophenone			-----NA-----			
17 T	Hexachloroethane			-----NA-----			
18 P	N-Nitroso-di-n-propylamin			-----NA-----			
19 T	m+p-cresols	1.333	1.298	2.6	67	0.00	4.54
20	4-methylphenol	1.333	1.298	2.6	67	0.00	4.54
21 I	1,4-Dichlorobenzene-d4A			-----NA-----			
22	Benzaldehyde			-----NA-----			
23 I	Naphthalene-d8	1.000	1.000	0.0	68	0.00	5.25
24 S	Nitrobenzene-d5			-----NA-----			
25 T	Nitrobenzene			-----NA-----			
26 T	Isophorone			-----NA-----			
27 C	2-Nitrophenol	0.197	0.194	1.5	66	0.00	4.95
28 T	2,4-Dimethylphenol	0.376	0.369	1.9	67	0.00	4.97
29 T	bis(2-Chloroethoxy)methan			-----NA-----			
30 T	Benzoic acid	0.265	0.288	-8.7	70	-0.02	5.06
31 C	2,4-Dichlorophenol	0.313	0.301	3.8	64	0.00	5.14
32 M	1,2,4-Trichlorobenzene			-----NA-----			
33 T	Naphthalene			-----NA-----			
34 T	2,6-Dichlorophenol	0.311	0.307	1.3	67	0.00	5.34
35 T	4-Chloroaniline			-----NA-----			
36 C	Hexachlorobutadiene			-----NA-----			
37 C	4-Chloro-3-methylphenol	0.309	0.302	2.3	65	0.00	5.75
38 T	2-Methylnaphthalene			-----NA-----			
39 T	1-Methylnaphthalene			-----NA-----			
40 T	1,2,4,5-Tetrachlorobenzen			-----NA-----			

9.7.2
9

Initial Calibration Verification

Job Number: JB37361

Sample: MSR1128-ICV1128

Account: ALNJ Accutest New Jersey

Lab FileID: R30978.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

41	I	Naphthalene-d8a							
42		Caprolactam							
43	I	Acenaphthene-d10	1.000	1.000	0.0	65	0.00	6.79	
44	T	Pentachloronitrobenzene							
45	P	Hexachlorocyclopentadiene							
46	C	2,4,6-Trichlorophenol	0.405	0.409	-1.0	63	0.00	6.13	
47	T	2,4,5-Trichlorophenol	0.424	0.446	-5.2	65	0.00	6.17	
48	S	2-Fluorobiphenyl							
49	T	2-Chloronaphthalene							
50	M	Acenaphthylene							
51	T	Dimethylphthalate							
52	T	2,4-Dinitrotoluene							
53	C	Acenaphthene							
54	P	2,4-Dinitrophenol	0.199	0.167	16.1	53	0.00	6.85	
55	T	Dibenzofuran							
56	M	2,6-Dinitrotoluene							
57	P	4-Nitrophenol	0.266	0.267	-0.4	64	0.00	6.91	
58	T	2,3,4,6-Tetrachlorophenol							
59	T	Fluorene							
60	T	4-Chlorophenyl-phenylethe							
61	T	Diethylphthalate							
62	T	2-nitroaniline							
63	T	3-nitroaniline							
64	T	4-nitroaniline							
65		Acenaphthene-d10a							
66		1,1'-Biphenyl							
67	I	Phenanthrene-d10	1.000	1.000	0.0	66	0.00	8.18	
68	T	4,6-Dinitro-2-methylpheno							
69	C	n-Nitrosodiphenylamine							
70	T	1,2-Diphenylhydrazine							
71	S	2,4,6-Tribromophenol	0.129	0.116	10.1	57	0.00	7.52	
72	T	4-Bromophenyl-phenylether							
73	T	Hexachlorobenzene							
74	C	Pentachlorophenol	0.168	0.169	-0.6	64	0.00	8.06	
75	T	Phenanthrene							
76	T	Anthracene							
77	T	Carbazole							
78	T	Di-n-butylphthalate							
79	C	Fluoranthene							
80	I	Phenanthrene-d10a							
81		Atrazine							
82	I	Chrysene-d12	1.000	1.000	0.0	73	0.00	11.14	
83	T	Benzidine							
84	M	Pyrene							
85	S	Terphenyl-d14							
86		3,3-Dimethylbenzidine							
87	T	Butylbenzylphthalate							
88	T	3,3'-Dichlorobenzidine							
89	T	Benzo[a]anthracene							
90	T	Chrysene							
91	T	bis(2-Ethylhexyl)phthalat							
92	I	Perylene-d12	1.000	1.000	0.0	66	0.00	12.74	
93	C	Di-n-octylphthalate							

9.7.2
9

Initial Calibration Verification

Job Number: JB37361

Sample: MSR1128-ICV1128

Account: ALNJ Accutest New Jersey

Lab FileID: R30978.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

94	T	Benzo[b]fluoranthene	-----NA-----
95	T	Benzo[k]fluoranthene	-----NA-----
96	C	Benzo[a]pyrene	-----NA-----
97	T	Indeno[1,2,3-cd]pyrene	-----NA-----
98	T	Dibenz[a,h]anthracene	-----NA-----
99	T	Benzo[g,h,i]perylene	-----NA-----

(#) = Out of Range

SPCC's out = 2 CCC's out = 7

R30970.D R130530_8270+.m

Thu May 30 14:55:23 2013

Initial Calibration Verification

Job Number: JB37361

Sample: MSR1128-ICV1128

Account: ALNJ Accutest New Jersey

Lab FileID: R30979.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\data\R13030\R30979.D Vial: 9
 Acq On : 30 May 2013 12:01 pm Operator: kristinr
 Sample : ICV1128-20 Inst : MSR
 Misc : op33100,msr1128,,,,,1,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : C:\msdchem\1\met...\R130530_8270+.m (RTE Integrator)
 Title : SW-864 Method 8270
 Last Update : Thu May 30 14:53:36 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	100	0.00	4.20
2	N-nitrosodimethylamine	0.806	0.898	-11.4	106	0.00	2.38
3 T	Pyridine	1.455	1.511	-3.8	98	0.01	2.39
4 T	Aniline			-----NA-----			
5 S	2-Fluorophenol			-----NA-----			
6 T	bis(2-Chloroethyl)ether	1.011	1.026	-1.5	97	0.00	4.01
7 S	Phenol-d5			-----NA-----			
8 C	Phenol			-----NA-----			
9 M	2-Chlorophenol			-----NA-----			
10 T	1,3-Dichlorobenzene	1.559	1.624	-4.2	102	0.00	4.18
11 C	1,4-Dichlorobenzene	1.634	1.687	-3.2	103	0.00	4.22
12 T	1,2-Dichlorobenzene	1.486	1.556	-4.7	105	0.00	4.37
13 T	Benzyl alcohol	0.778	0.749	3.7	94	0.00	4.33
14 T	bis(2-chloroisopropyl)eth	1.592	1.942	-22.0#	123	0.00	4.44
15 T	o-cresol			-----NA-----			
16 T	Acetophenone	1.964	1.890	3.8	97	0.00	4.54
17 T	Hexachloroethane	0.602	0.647	-7.5	110	0.00	4.61
18 P	N-Nitroso-di-n-propylamin	0.963	1.003	-4.2	105	-0.01	4.55
19 T	m+p-cresols			-----NA-----			
20	4-methylphenol			-----NA-----			
21 I	1,4-Dichlorobenzene-d4A			-----NA-----			
22	Benzaldehyde			-----NA-----			
23 I	Naphthalene-d8	1.000	1.000	0.0	103	0.00	5.25
24 S	Nitrobenzene-d5	0.398	0.385	3.3	97	0.00	4.67
25 T	Nitrobenzene	0.397	0.392	1.3	100	0.00	4.69
26 T	Isophorone	0.694	0.673	3.0	99	0.00	4.87
27 C	2-Nitrophenol			-----NA-----			
28 T	2,4-Dimethylphenol			-----NA-----			
29 T	bis(2-Chloroethoxy)methan	0.410	0.414	-1.0	105	0.00	5.05
30 T	Benzoic acid			-----NA-----			
31 C	2,4-Dichlorophenol			-----NA-----			
32 M	1,2,4-Trichlorobenzene	0.341	0.357	-4.7	107	0.00	5.22
33 T	Naphthalene	1.075	1.106	-2.9	106	0.00	5.27
34 T	2,6-Dichlorophenol			-----NA-----			
35 T	4-Chloroaniline			-----NA-----			
36 C	Hexachlorobutadiene	0.202	0.218	-7.9	109	0.00	5.42
37 C	4-Chloro-3-methylphenol			-----NA-----			
38 T	2-Methylnaphthalene	0.730	0.710	2.7	103	0.00	5.86
39 T	1-Methylnaphthalene	0.704	0.695	1.3	103	0.00	5.95
40 T	1,2,4,5-Tetrachlorobenzen	0.378	0.376	0.5	102	0.00	6.04

9.7.3
9

Initial Calibration Verification

Job Number: JB37361

Sample: MSR1128-ICV1128

Account: ALNJ Accutest New Jersey

Lab FileID: R30979.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

41	I	Naphthalene-d8a			-----NA-----			
42		Caprolactam			-----NA-----			
43	I	Acenaphthene-d10	1.000	1.000	0.0	102	0.00	6.79
44	T	Pentachloronitrobenzene	0.181	0.175	3.3	99	0.00	8.14
45	P	Hexachlorocyclopentadiene	0.364	0.196	46.2#	56	0.00	6.06
46	C	2,4,6-Trichlorophenol			-----NA-----			
47	T	2,4,5-Trichlorophenol			-----NA-----			
48	S	2-Fluorobiphenyl	1.408	1.459	-3.6	104	0.00	6.20
49	T	2-Chloronaphthalene	1.157	1.251	-8.1	110	0.00	6.28
50	M	Acenaphthylene	1.880	1.532	18.5	82	0.00	6.65
51	T	Dimethylphthalate	1.365	1.384	-1.4	104	0.00	6.58
52	T	2,4-Dinitrotoluene	0.404	0.397	1.7	101	0.00	6.99
53	C	Acenaphthene	1.252	1.312	-4.8	107	0.00	6.82
54	P	2,4-Dinitrophenol			-----NA-----			
55	T	Dibenzofuran	1.721	1.744	-1.3	103	0.00	6.95
56	M	2,6-Dinitrotoluene	0.309	0.308	0.3	103	0.00	6.64
57	P	4-Nitrophenol			-----NA-----			
58	T	2,3,4,6-Tetrachlorophenol			-----NA-----			
59	T	Fluorene	1.382	1.435	-3.8	105	0.00	7.27
60	T	4-Chlorophenyl-phenylethe	0.690	0.709	-2.8	104	0.00	7.27
61	T	Diethylphthalate	1.330	1.376	-3.5	105	0.00	7.21
62	T	2-nitroaniline	0.392	0.419	-6.9	105	0.00	6.41
63	T	3-nitroaniline	0.346	0.293	15.3	86	0.00	6.77
64	T	4-nitroaniline	0.348	0.317	8.9	93	-0.01	7.33
65		Acenaphthene-d10a			-----NA-----			
66		1,1'-Biphenyl			-----NA-----			
67	I	Phenanthrene-d10	1.000	1.000	0.0	101	0.00	8.18
68	T	4,6-Dinitro-2-methylpheno			-----NA-----			
69	C	n-Nitrosodiphenylamine	0.584	0.547	6.3	94	0.00	7.38
70	T	1,2-Diphenylhydrazine	0.863	0.788	8.7	102	0.00	7.41
71	S	2,4,6-Tribromophenol			-----NA-----			
72	T	4-Bromophenyl-phenylether	0.245	0.238	2.9	98	0.00	7.73
73	T	Hexachlorobenzene	0.261	0.267	-2.3	106	0.00	7.88
74	C	Pentachlorophenol			-----NA-----			
75	T	Phenanthrene	1.180	1.220	-3.4	104	0.00	8.21
76	T	Anthracene	1.228	1.220	0.7	99	0.00	8.25
77	T	Carbazole	1.100	1.114	-1.3	102	0.00	8.42
78	T	Di-n-butylphthalate	1.311	1.276	2.7	96	0.00	8.83
79	C	Fluoranthene	1.206	1.303	-8.0	99	0.00	9.48
80	I	Phenanthrene-d10a			-----NA-----			
81		Atrazine			-----NA-----			
82	I	Chrysene-d12	1.000	1.000	0.0	96	0.00	11.15
83	T	Benzidine			-----NA-----			
84	M	Pyrene	1.306	1.386	-6.1	91	0.00	9.74
85	S	Terphenyl-d14	0.901	0.846	6.1	82	0.00	9.92
86		3,3-Dimethylbenzidine			-----NA-----			
87	T	Butylbenzylphthalate	0.523	0.529	-1.1	98	0.00	10.52
88	T	3,3'-Dichlorobenzidine			-----NA-----			
89	T	Benzo[a]anthracene	1.110	1.189	-7.1	102	0.00	11.12
90	T	Chrysene	1.080	1.107	-2.5	99	0.00	11.18
91	T	bis(2-Ethylhexyl)phthalat	0.769	0.752	2.2	98	0.00	11.22
92	I	Perylene-d12	1.000	1.000	0.0	109	0.00	12.74
93	C	Di-n-octylphthalate	1.311	1.188	9.4	101	0.00	11.91

Initial Calibration Verification

Job Number: JB37361

Sample: MSR1128-ICV1128

Account: ALNJ Accutest New Jersey

Lab FileID: R30979.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

94	T	Benzo[b]fluoranthene	1.271	1.048	17.5	96	-0.01	12.34
95	T	Benzo[k]fluoranthene	1.136	1.143	-0.6	100	0.00	12.37
96	C	Benzo[a]pyrene	1.116	1.051	5.8	103	0.00	12.68
97	T	Indeno[1,2,3-cd]pyrene	1.385	1.431	-3.3	100	-0.01	13.87
98	T	Dibenz[a,h]anthracene	1.110	1.176	-5.9	102	-0.01	13.88
99	T	Benzo[g,h,i]perylene	1.120	1.200	-7.1	102	-0.01	14.18

(#) = Out of Range

SPCC's out = 2 CCC's out = 6

R30974.D R130530_8270+.m

Fri May 31 12:35:15 2013

Initial Calibration Verification

Job Number: JB37361

Sample: MSR1128-ICV1128

Account: ALNJ Accutest New Jersey

Lab FileID: R30980.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\data\R13030\R30980.D Vial: 10
 Acq On : 30 May 2013 12:24 pm Operator: kristinr
 Sample : ICV1128-20 Inst : MSR
 Misc : op33100,msr1128,,,,,1,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : C:\msdchem\1\met...\R130530_8270+.m (RTE Integrator)
 Title : SW-864 Method 8270
 Last Update : Thu May 30 14:53:36 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	93	0.00	4.20
2	N-nitrosodimethylamine			-----NA-----			
3 T	Pyridine			-----NA-----			
4 T	Aniline	0.810	0.756	6.7	85	0.00	3.98
5 S	2-Fluorophenol			-----NA-----			
6 T	bis(2-Chloroethyl)ether			-----NA-----			
7 S	Phenol-d5			-----NA-----			
8 C	Phenol			-----NA-----			
9 M	2-Chlorophenol			-----NA-----			
10 T	1,3-Dichlorobenzene			-----NA-----			
11 C	1,4-Dichlorobenzene			-----NA-----			
12 T	1,2-Dichlorobenzene			-----NA-----			
13 T	Benzyl alcohol			-----NA-----			
14 T	bis(2-chloroisopropyl)eth			-----NA-----			
15 T	o-cresol			-----NA-----			
16 T	Acetophenone			-----NA-----			
17 T	Hexachloroethane			-----NA-----			
18 P	N-Nitroso-di-n-propylamin			-----NA-----			
19 T	m+p-cresols			-----NA-----			
20	4-methylphenol			-----NA-----			
21 I	1,4-Dichlorobenzene-d4A	1.000	1.000	0.0	61	-0.07	4.20
22	Benzaldehyde			-----NA-----			
23 I	Naphthalene-d8	1.000	1.000	0.0	94	0.00	5.25
24 S	Nitrobenzene-d5			-----NA-----			
25 T	Nitrobenzene			-----NA-----			
26 T	Isophorone			-----NA-----			
27 C	2-Nitrophenol			-----NA-----			
28 T	2,4-Dimethylphenol			-----NA-----			
29 T	bis(2-Chloroethoxy)methan			-----NA-----			
30 T	Benzoic acid			-----NA-----			
31 C	2,4-Dichlorophenol			-----NA-----			
32 M	1,2,4-Trichlorobenzene			-----NA-----			
33 T	Naphthalene			-----NA-----			
34 T	2,6-Dichlorophenol			-----NA-----			
35 T	4-Chloroaniline	0.455	0.417	8.4	86	0.00	5.34
36 C	Hexachlorobutadiene			-----NA-----			
37 C	4-Chloro-3-methylphenol			-----NA-----			
38 T	2-Methylnaphthalene			-----NA-----			
39 T	1-Methylnaphthalene			-----NA-----			
40 T	1,2,4,5-Tetrachlorobenzen			-----NA-----			

9.7.4
9

Initial Calibration Verification

Job Number: JB37361

Sample: MSR1128-ICV1128

Account: ALNJ Accutest New Jersey

Lab FileID: R30980.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

41	I	Naphthalene-d8a	1.000	1.000	0.0	60	-0.07	5.25
42		Caprolactam			-----NA-----			
43	I	Acenaphthene-d10	1.000	1.000	0.0	89	0.00	6.79
44	T	Pentachloronitrobenzene			-----NA-----			
45	P	Hexachlorocyclopentadiene			-----NA-----			
46	C	2,4,6-Trichlorophenol			-----NA-----			
47	T	2,4,5-Trichlorophenol			-----NA-----			
48	S	2-Fluorobiphenyl			-----NA-----			
49	T	2-Chloronaphthalene			-----NA-----			
50	M	Acenaphthylene			-----NA-----			
51	T	Dimethylphthalate			-----NA-----			
52	T	2,4-Dinitrotoluene			-----NA-----			
53	C	Acenaphthene			-----NA-----			
54	P	2,4-Dinitrophenol			-----NA-----			
55	T	Dibenzofuran			-----NA-----			
56	M	2,6-Dinitrotoluene			-----NA-----			
57	P	4-Nitrophenol			-----NA-----			
58	T	2,3,4,6-Tetrachlorophenol			-----NA-----			
59	T	Fluorene			-----NA-----			
60	T	4-Chlorophenyl-phenylethe			-----NA-----			
61	T	Diethylphthalate			-----NA-----			
62	T	2-nitroaniline			-----NA-----			
63	T	3-nitroaniline			-----NA-----			
64	T	4-nitroaniline			-----NA-----			
65		Acenaphthene-d10a	1.000	1.000	0.0	56	-0.07	6.79
66		1,1'-Biphenyl			-----NA-----			
67	I	Phenanthrene-d10	1.000	1.000	0.0	94	0.00	8.18
68	T	4,6-Dinitro-2-methylpheno			-----NA-----			
69	C	n-Nitrosodiphenylamine			-----NA-----			
70	T	1,2-Diphenylhydrazine			-----NA-----			
71	S	2,4,6-Tribromophenol			-----NA-----			
72	T	4-Bromophenyl-phenylether			-----NA-----			
73	T	Hexachlorobenzene			-----NA-----			
74	C	Pentachlorophenol			-----NA-----			
75	T	Phenanthrene			-----NA-----			
76	T	Anthracene			-----NA-----			
77	T	Carbazole			-----NA-----			
78	T	Di-n-butylphthalate			-----NA-----			
79	C	Fluoranthene			-----NA-----			
80	I	Phenanthrene-d10a	1.000	1.000	0.0	58	-0.08	8.18
81		Atrazine			-----NA-----			
82	I	Chrysene-d12	1.000	1.000	0.0	90	0.00	11.14
83	T	Benzidine	0.525	0.712	-35.6#	110	0.00	9.64
84	M	Pyrene			-----NA-----			
85	S	Terphenyl-d14			-----NA-----			
86		3,3-Dimethylbenzidine			-----NA-----			
87	T	Butylbenzylphthalate			-----NA-----			
88	T	3,3'-Dichlorobenzidine	0.443	0.420	5.2	85	0.00	11.12
89	T	Benzo[a]anthracene			-----NA-----			
90	T	Chrysene			-----NA-----			
91	T	bis(2-Ethylhexyl)phthalat			-----NA-----			
92	I	Perylene-d12	1.000	1.000	0.0	111	0.00	12.74
93	C	Di-n-octylphthalate			-----NA-----			

Initial Calibration Verification

Job Number: JB37361

Sample: MSR1128-ICV1128

Account: ALNJ Accutest New Jersey

Lab FileID: R30980.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

94	T	Benzo[b]fluoranthene	-----NA-----
95	T	Benzo[k]fluoranthene	-----NA-----
96	C	Benzo[a]pyrene	-----NA-----
97	T	Indeno[1,2,3-cd]pyrene	-----NA-----
98	T	Dibenz[a,h]anthracene	-----NA-----
99	T	Benzo[g,h,i]perylene	-----NA-----

(#) = Out of Range

SPCC's out = 4 CCC's out = 13

R30974.D R130530_8270+.m

Fri May 31 12:37:23 2013

Continuing Calibration Summary

Job Number: JB37361

Sample: MSR1132-CC1128

Account: ALNJ Accutest New Jersey

Lab FileID: R31120.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\data\R130602\R31120.D Vial: 100
 Acq On : 2 Jun 2013 10:46 am Operator: AkinA
 Sample : CC1128-50 Inst : MSR
 Misc : OP33206,MSr1132,1000,,,1,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : C:\msdchem\1\met...\R130521_8270+.m (RTE Integrator)
 Title : SW-864 Method 8270
 Last Update : Tue May 28 18:15:12 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	95	-0.09	4.18
2	N-nitrosodimethylamine	0.741	0.557	24.8#	68	-0.10	2.34
3 T	Pyridine	1.297	1.077	17.0	73	-0.10	2.35
4 T	Methyl Methanesulfonate	0.705	0.691	2.0	93	-0.09	3.14
5 T	Ethyl Methanesulfonate	0.944	0.950	-0.6	95	-0.09	3.64
6 T	Aniline	0.723	0.645	10.8	82	-0.09	3.95
7 S	2-Fluorophenol	1.165	1.192	-2.3	95	-0.08	3.24
8 T	bis(2-Chloroethyl)ether	0.918	0.919	-0.1	96	-0.09	3.99
9 S	Phenol-d5	1.420	1.526	-7.5	101	-0.07	3.93
10 C	Phenol	1.489	1.584	-6.4	101	-0.07	3.94
11 M	2-Chlorophenol	1.216	1.449	-19.2	110	-0.09	4.04
12 T	1,3-Dichlorobenzene	1.497	1.532	-2.3	97	-0.09	4.15
13 C	1,4-Dichlorobenzene	1.584	1.627	-2.7	98	-0.09	4.19
14 T	1,2-Dichlorobenzene	1.413	1.477	-4.5	99	-0.09	4.34
15 T	Benzyl alcohol	0.783	0.862	-10.1	106	-0.09	4.30
16 T	bis(2-chloroisopropyl)eth	1.390	1.375	1.1	96	-0.09	4.42
17 T	o-cresol	1.124	1.218	-8.4	102	-0.07	4.41
18 T	Acetophenone	1.819	1.901	-4.5	99	-0.08	4.53
19 T	Hexachloroethane	0.536	0.571	-6.5	99	-0.09	4.59
20 P	N-Nitroso-di-n-propylamin	0.822	0.922	-12.2	103	-0.09	4.54
21 T	m+p-cresols	1.180	1.335	-13.1	106	-0.07	4.53
22	4-methylphenol	1.179	1.335	-13.2	106	-0.07	4.53
23	Benzaldehyde	3.790	3.943	-4.0	99	-0.08	4.53
24 I	Naphthalene-d8	1.000	1.000	0.0	100	-0.10	5.23
25 S	Nitrobenzene-d5	0.320	0.356	-11.2	104	-0.09	4.65
26 T	Nitrobenzene	0.337	0.335	0.6	96	-0.09	4.67
27 T	Isophorone	0.565	0.589	-4.2	101	-0.09	4.85
----- Amount Calc. %Drift -----							
28 C	2-Nitrophenol	50.000	60.204	-20.4#	139	-0.09	4.93
----- AvgRF CCRF %Dev -----							
29 T	2,4-Dimethylphenol	0.332	0.343	-3.3	101	-0.09	4.95
30 T	bis(2-Chloroethoxy)methan	0.375	0.354	5.6	95	-0.09	5.03
----- Amount Calc. %Drift -----							
31 T	Benzoic acid	50.000	61.373	-22.7#	128	-0.06	5.06
----- AvgRF CCRF %Dev -----							
32 C	2,4-Dichlorophenol	0.275	0.322	-17.1	116	-0.09	5.12
33 M	1,2,4-Trichlorobenzene	0.315	0.339	-7.6	106	-0.09	5.20

9.7.5
9

Continuing Calibration Summary

Job Number: JB37361

Sample: MSR1132-CC1128

Account: ALNJ Accutest New Jersey

Lab FileID: R31120.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

34	T	Naphthalene	1.011	1.054	-4.3	105	-0.10	5.25
35	T	2,6-Dichlorophenol	0.275	0.314	-14.2	114	-0.09	5.32
36	T	4-Chloroaniline	0.421	0.429	-1.9	102	-0.09	5.31
37	C	Hexachlorobutadiene	0.199	0.202	-1.5	102	-0.10	5.40
38	C	4-Chloro-3-methylphenol	0.271	0.271	0.0	98	-0.08	5.73
39	T	2-Methylnaphthalene	0.693	0.743	-7.2	108	-0.09	5.84
40	T	1-Methylnaphthalene	0.669	0.701	-4.8	103	-0.10	5.93
41	T	1,2,4,5-Tetrachlorobenzen	0.361	0.385	-6.6	107	-0.09	6.02
42		Caprolactam	0.108	0.123	-13.9	111	-0.07	5.60
43	I	Acenaphthene-d10	1.000	1.000	0.0	98	-0.10	6.77
44	T	Pentachloronitrobenzene	0.159	0.143	10.1	89	-0.11	8.11
		----- Amount	Calc.	%Drift	-----			
45	P	Hexachlorocyclopentadiene	100.000	121.689	-21.7#	128	-0.10	6.03
		----- AvgRF	CCRF	%Dev	-----			
46	C	2,4,6-Trichlorophenol	0.351	0.422	-20.2	118	-0.09	6.11
47	T	2,4,5-Trichlorophenol	0.385	0.449	-16.6	113	-0.08	6.15
48	S	2-Fluorobiphenyl	1.365	1.439	-5.4	102	-0.09	6.17
49	T	2-Chloronaphthalene	1.091	1.160	-6.3	104	-0.10	6.26
50	M	Acenaphthylene	1.789	1.987	-11.1	106	-0.10	6.63
51	T	Dimethylphthalate	1.175	1.267	-7.8	102	-0.09	6.55
		----- Amount	Calc.	%Drift	-----			
52	T	2,4-Dinitrotoluene	100.000	130.032	-30.0#	136	-0.09	6.97
		----- AvgRF	CCRF	%Dev	-----			
53	C	Acenaphthene	1.134	1.211	-6.8	103	-0.10	6.80
		----- Amount	Calc.	%Drift	-----			
54	P	2,4-Dinitrophenol	50.000	75.633	-51.3#	198	-0.09	6.84
		----- AvgRF	CCRF	%Dev	-----			
55	T	Dibenzofuran	1.621	1.536	5.2	93	-0.10	6.93
		----- Amount	Calc.	%Drift	-----			
56	M	2,6-Dinitrotoluene	100.000	129.008	-29.0#	132	-0.09	6.62
		----- AvgRF	CCRF	%Dev	-----			
57	P	4-Nitrophenol	0.217	0.249	-14.7	113	-0.07	6.90
58	T	2,3,4,6-Tetrachlorophenol	0.297	0.403	-35.7#	129	-0.09	7.09
59	T	Fluorene	1.292	1.460	-13.0	109	-0.10	7.25
60	T	4-Chlorophenyl-phenylethe	0.635	0.732	-15.3	114	-0.10	7.24
61	T	Diethylphthalate	1.152	1.397	-21.3#	114	-0.10	7.18
		----- Amount	Calc.	%Drift	-----			
62	T	2-nitroaniline	50.000	59.776	-19.6	125	-0.09	6.38
		----- AvgRF	CCRF	%Dev	-----			
63	T	3-nitroaniline	0.278	0.339	-21.9#	122	-0.09	6.75
64	T	4-nitroaniline	0.289	0.358	-23.9#	121	-0.09	7.31
65		1,1'-Biphenyl	1.411	1.495	-6.0	103	-0.09	6.25
66	I	Phenanthrene-d10	1.000	1.000	0.0	76	-0.10	8.16
		----- Amount	Calc.	%Drift	-----			
67	T	4,6-Dinitro-2-methylpheno	50.000	97.962	-95.9#	209	-0.10	7.34
		----- AvgRF	CCRF	%Dev	-----			

9.7.5
9

Continuing Calibration Summary

Job Number: JB37361

Sample: MSR1132-CC1128

Account: ALNJ Accutest New Jersey

Lab FileID: R31120.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

68	C	n-Nitrosodiphenylamine	0.538	0.779	-44.8#	108	-0.10	7.36
69	T	1,2-Diphenylhydrazine	0.735	0.977	-32.9#	100	-0.10	7.39
70	S	2,4,6-Tribromophenol	0.094	0.181	-92.6#	146	-0.10	7.50
71	T	4-Bromophenyl-phenylether	0.223	0.319	-43.0#	105	-0.10	7.70
72	T	Hexachlorobenzene	0.229	0.319	-39.3#	105	-0.11	7.85
73	C	Pentachlorophenol	0.136	0.184	-35.3#	104	-0.10	8.04
74	T	Phenanthrene	1.092	1.161	-6.3	80	-0.11	8.18
75	T	Anthracene	1.106	1.231	-11.3	80	-0.10	8.23
76	T	Carbazole	0.985	1.105	-12.2	81	-0.10	8.41
77	T	Di-n-butylphthalate	1.075	1.326	-23.3#	90	-0.11	8.80
78	C	Fluoranthene	1.162	1.355	-16.6	83	-0.11	9.46
79		Atrazine	0.185	0.263	-42.2#	102	-0.10	7.91
80	I	Chrysene-d12	1.000	1.000	0.0	82	-0.12	11.12
81	T	Benzidine	0.330	0.346	-4.8	73	-0.11	9.62
82	M	Pyrene	1.130	1.183	-4.7	82	-0.11	9.71
83	S	Terphenyl-d14	0.820	0.841	-2.6	81	-0.11	9.90
84		3,3-Dimethylbenzidine	0.357	0.385	-7.8	75	-0.11	10.47
----- Amount			Calc.	%Drift	-----			
85	T	Butylbenzylphthalate	50.000	65.569	-31.1#	121	-0.11	10.50
----- AvgRF			CCRF	%Dev	-----			
86	T	3,3'-Dichlorobenzidine	0.333	0.440	-32.1#	103	-0.11	11.10
87	T	Benzo[a]anthracene	1.000	1.117	-11.7	87	-0.11	11.10
88	T	Chrysene	1.044	1.089	-4.3	85	-0.11	11.15
----- Amount			Calc.	%Drift	-----			
89	T	bis(2-Ethylhexyl)phthalat	50.000	64.026	-28.1#	117	-0.11	11.19
----- AvgRF			CCRF	%Dev	-----			
90	I	Perylene-d12	1.000	1.000	0.0	115	-0.12	12.71
----- Amount			Calc.	%Drift	-----			
91	C	Di-n-octylphthalate	50.000	47.128	5.7	123	-0.11	11.88
----- AvgRF			CCRF	%Dev	-----			
92	T	Benzo[b]fluoranthene	1.127	1.078	4.3	105	-0.11	12.32
93	T	Benzo[k]fluoranthene	1.063	0.900	15.3	89	-0.12	12.34
94	C	Benzo[a]pyrene	1.027	1.061	-3.3	110	-0.12	12.65
95	T	Indeno[1,2,3-cd]pyrene	1.234	1.373	-11.3	118	-0.15	13.85
96	T	Dibenz[a,h]anthracene	1.000	1.129	-12.9	120	-0.15	13.85
97	T	Benzo[g,h,i]perylene	1.016	1.197	-17.8	127	-0.17	14.16

(#) = Out of Range
R30608.D R130521_8270+.m

SPCC's out = 0 CCC's out = 3
Mon Jun 03 10:25:57 2013

Continuing Calibration Summary

Job Number: JB37361

Sample: MSR1134-CC1128

Account: ALNJ Accutest New Jersey

Lab FileID: R31161.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\data\R130603\R31161.D Vial: 96
Acq On : 3 Jun 2013 9:02 pm Operator: kristinr
Sample : CC1128-50 Inst : MSR
Misc : OP33206,MSr1134,1000,,,1,1 Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : C:\msdchem\1\met...\R130530_8270+.m (RTE Integrator)
Title : SW-864 Method 8270
Last Update : Thu May 30 14:53:36 2013
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	80	-0.07	4.14
2	N-nitrosodimethylamine			NA			
3 T	Pyridine			NA			
4 T	Aniline			NA			
5 S	2-Fluorophenol			NA			
6 T	bis(2-Chloroethyl)ether			NA			
7 S	Phenol-d5			NA			
8 C	Phenol			NA			
9 M	2-Chlorophenol			NA			
10 T	1,3-Dichlorobenzene			NA			
11 C	1,4-Dichlorobenzene			NA			
12 T	1,2-Dichlorobenzene			NA			
13 T	Benzyl alcohol			NA			
14 T	bis(2-chloroisopropyl)eth			NA			
15 T	o-cresol			NA			
16 T	Acetophenone			NA			
17 T	Hexachloroethane			NA			
18 P	N-Nitroso-di-n-propylamin			NA			
19 T	m+p-cresols			NA			
20	4-methylphenol			NA			
21 I	1,4-Dichlorobenzene-d4A	1.000	1.000	0.0	97	-0.13	4.14
22	Benzaldehyde	3.791	3.858	-1.8	99	-0.13	4.48
23 I	Naphthalene-d8	1.000	1.000	0.0	75	-0.07	5.19
24 S	Nitrobenzene-d5			NA			
25 T	Nitrobenzene			NA			
26 T	Isophorone			NA			
27 C	2-Nitrophenol			NA			
28 T	2,4-Dimethylphenol			NA			
29 T	bis(2-Chloroethoxy)methan			NA			
30 T	Benzoic acid			NA			
31 C	2,4-Dichlorophenol			NA			
32 M	1,2,4-Trichlorobenzene			NA			
33 T	Naphthalene			NA			
34 T	2,6-Dichlorophenol			NA			
35 T	4-Chloroaniline			NA			
36 C	Hexachlorobutadiene			NA			
37 C	4-Chloro-3-methylphenol			NA			
38 T	2-Methylnaphthalene			NA			
39 T	1-Methylnaphthalene			NA			
40 T	1,2,4,5-Tetrachlorobenzen			NA			

Continuing Calibration Summary

Job Number: JB37361

Sample: MSR1134-CC1128

Account: ALNJ Accutest New Jersey

Lab FileID: R31161.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

41	I	Naphthalene-d8a	1.000	1.000	0.0	96	-0.14	5.19
42		Caprolactam	0.108	0.142	-31.5#	122	-0.12	5.55
43	I	Acenaphthene-d10	1.000	1.000	0.0	80	-0.07	6.72
44	T	Pentachloronitrobenzene			-----NA-----			
45	P	Hexachlorocyclopentadiene			-----NA-----			
46	C	2,4,6-Trichlorophenol			-----NA-----			
47	T	2,4,5-Trichlorophenol			-----NA-----			
48	S	2-Fluorobiphenyl			-----NA-----			
49	T	2-Chloronaphthalene			-----NA-----			
50	M	Acenaphthylene			-----NA-----			
51	T	Dimethylphthalate			-----NA-----			
52	T	2,4-Dinitrotoluene			-----NA-----			
53	C	Acenaphthene			-----NA-----			
54	P	2,4-Dinitrophenol			-----NA-----			
55	T	Dibenzofuran			-----NA-----			
56	M	2,6-Dinitrotoluene			-----NA-----			
57	P	4-Nitrophenol			-----NA-----			
58	T	2,3,4,6-Tetrachlorophenol			-----NA-----			
59	T	Fluorene			-----NA-----			
60	T	4-Chlorophenyl-phenylethe			-----NA-----			
61	T	Diethylphthalate			-----NA-----			
62	T	2-nitroaniline			-----NA-----			
63	T	3-nitroaniline			-----NA-----			
64	T	4-nitroaniline			-----NA-----			
65		Acenaphthene-d10a	1.000	1.000	0.0	101	-0.14	6.72
66		1,1'-Biphenyl	1.412	1.587	-12.4	114	-0.14	6.20
67	I	Phenanthrene-d10	1.000	1.000	0.0	59	-0.08	8.11
68	T	4,6-Dinitro-2-methylpheno			-----NA-----			
69	C	n-Nitrosodiphenylamine			-----NA-----			
70	T	1,2-Diphenylhydrazine			-----NA-----			
71	S	2,4,6-Tribromophenol			-----NA-----			
72	T	4-Bromophenyl-phenylether			-----NA-----			
73	T	Hexachlorobenzene			-----NA-----			
74	C	Pentachlorophenol			-----NA-----			
75	T	Phenanthrene			-----NA-----			
76	T	Anthracene			-----NA-----			
77	T	Carbazole			-----NA-----			
78	T	Di-n-butylphthalate			-----NA-----			
79	C	Fluoranthene			-----NA-----			
80	I	Phenanthrene-d10a	1.000	1.000	0.0	72	-0.16	8.11
81		Atrazine	0.185	0.213	-15.1	78	-0.14	7.86
82	I	Chrysene-d12	1.000	1.000	0.0	73	-0.08	11.07
83	T	Benzidine			-----NA-----			
84	M	Pyrene			-----NA-----			
85	S	Terphenyl-d14			-----NA-----			
86		3,3-Dimethylbenzidine			-----NA-----			
87	T	Butylbenzylphthalate			-----NA-----			
88	T	3,3'-Dichlorobenzidine			-----NA-----			
89	T	Benzo[a]anthracene			-----NA-----			
90	T	Chrysene			-----NA-----			
91	T	bis(2-Ethylhexyl)phthalat			-----NA-----			
92	I	Perylene-d12	1.000	1.000	0.0	108	-0.09	12.65
93	C	Di-n-octylphthalate			-----NA-----			

Continuing Calibration Summary

Job Number: JB37361

Sample: MSR1134-CC1128

Account: ALNJ Accutest New Jersey

Lab FileID: R31161.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

94	T	Benzo[b]fluoranthene	-----NA-----
95	T	Benzo[k]fluoranthene	-----NA-----
96	C	Benzo[a]pyrene	-----NA-----
97	T	Indeno[1,2,3-cd]pyrene	-----NA-----
98	T	Dibenz[a,h]anthracene	-----NA-----
99	T	Benzo[g,h,i]perylene	-----NA-----

(#) = Out of Range

SPCC's out = 4 CCC's out = 13

R30970.D R130530_8270+.m

Wed Jun 12 07:27:40 2013

Continuing Calibration Summary

Job Number: JB37361

Sample: MSR1134-CC1128

Account: ALNJ Accutest New Jersey

Lab FileID: R31162.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\data\R130603\R31162.D Vial: 100
 Acq On : 3 Jun 2013 9:26 pm Operator: kristinr
 Sample : CC1128-80 Inst : MSR
 Misc : OP33206,MSr1134,1000,,,1,1 Multiplr: 1.00
 MS Integration Params: RTEINT.P

Method : C:\msdchem\1\met...\R130530_8270+.m (RTE Integrator)
 Title : SW-864 Method 8270
 Last Update : Thu May 30 14:53:36 2013
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	91	-0.07	4.14
2	N-nitrosodimethylamine	0.806	0.604	25.1#	69	-0.06	2.31
3 T	Pyridine	1.455	1.088	25.2#	68	-0.06	2.31
4 T	Aniline	0.810	0.659	18.6	74	-0.06	3.91
5 S	2-Fluorophenol	1.309	1.388	-6.0	95	-0.06	3.21
6 T	bis(2-Chloroethyl)ether	1.011	0.982	2.9	89	-0.06	3.95
7 S	Phenol-d5	1.683	1.760	-4.6	95	-0.05	3.89
8 C	Phenol	1.755	1.975	-12.5	103	-0.06	3.90
9 M	2-Chlorophenol	1.450	1.524	-5.1	94	-0.06	4.00
10 T	1,3-Dichlorobenzene	1.559	1.548	0.7	90	-0.06	4.11
11 C	1,4-Dichlorobenzene	1.634	1.638	-0.2	90	-0.07	4.15
12 T	1,2-Dichlorobenzene	1.486	1.641	-10.4	100	-0.07	4.30
13 T	Benzyl alcohol	0.778	0.901	-15.8	100	-0.06	4.27
14 T	bis(2-chloroisopropyl)eth	1.592	1.502	5.7	86	-0.06	4.38
15 T	o-cresol	1.252	1.351	-7.9	98	-0.06	4.37
16 T	Acetophenone	1.964	2.055	-4.6	97	-0.06	4.48
17 T	Hexachloroethane	0.602	0.631	-4.8	94	-0.06	4.55
18 P	N-Nitroso-di-n-propylamin	0.963	0.972	-0.9	90	-0.06	4.50
19 T	m+p-cresols	1.333	1.439	-8.0	98	-0.06	4.48
20	4-methylphenol	1.333	1.439	-8.0	98	-0.06	4.48
21 I	1,4-Dichlorobenzene-d4A	1.000	1.000	0.0	53	-0.13	4.14
22	Benzaldehyde			-----NA-----			
23 I	Naphthalene-d8	1.000	1.000	0.0	115	-0.07	5.19
24 S	Nitrobenzene-d5	0.398	0.333	16.3	96	-0.06	4.61
25 T	Nitrobenzene	0.397	0.324	18.4	93	-0.06	4.63
26 T	Isophorone	0.694	0.553	20.3#	92	-0.06	4.81
27 C	2-Nitrophenol	0.197	0.172	12.7	99	-0.06	4.89
28 T	2,4-Dimethylphenol	0.376	0.297	21.0#	91	-0.06	4.92
29 T	bis(2-Chloroethoxy)methan	0.410	0.350	14.6	98	-0.06	5.00
30 T	Benzoic acid	0.265	0.241	9.1	97	-0.04	5.04
31 C	2,4-Dichlorophenol	0.313	0.320	-2.2	117	-0.06	5.08
32 M	1,2,4-Trichlorobenzene	0.341	0.341	0.0	116	-0.07	5.15
33 T	Naphthalene	1.075	1.062	1.2	114	-0.07	5.21
34 T	2,6-Dichlorophenol	0.311	0.319	-2.6	118	-0.06	5.28
35 T	4-Chloroaniline	0.455	0.468	-2.9	118	-0.06	5.27
36 C	Hexachlorobutadiene	0.202	0.205	-1.5	115	-0.07	5.35
37 C	4-Chloro-3-methylphenol	0.309	0.317	-2.6	120	-0.06	5.68
38 T	2-Methylnaphthalene	0.730	0.740	-1.4	122	-0.06	5.80
39 T	1-Methylnaphthalene	0.704	0.680	3.4	116	-0.07	5.89
40 T	1,2,4,5-Tetrachlorobenzen	0.378	0.371	1.9	118	-0.06	5.98

9.7.7
9

Continuing Calibration Summary

Job Number: JB37361

Sample: MSR1134-CC1128

Account: ALNJ Accutest New Jersey

Lab FileID: R31162.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

41	I	Naphthalene-d8a	1.000	1.000	0.0	66	-0.14	5.19
42		Caprolactam			-----NA-----			
43	I	Acenaphthene-d10	1.000	1.000	0.0	114	-0.07	6.72
44	T	Pentachloronitrobenzene	0.181	0.178	1.7	112	-0.08	8.07
45	P	Hexachlorocyclopentadiene	0.364	0.379	-4.1	116	-0.07	5.99
46	C	2,4,6-Trichlorophenol	0.405	0.407	-0.5	120	-0.06	6.07
47	T	2,4,5-Trichlorophenol	0.424	0.445	-5.0	126	-0.06	6.10
48	S	2-Fluorobiphenyl	1.408	1.363	3.2	119	-0.07	6.12
49	T	2-Chloronaphthalene	1.157	1.148	0.8	120	-0.06	6.22
50	M	Acenaphthylene	1.880	1.884	-0.2	120	-0.06	6.59
51	T	Dimethylphthalate	1.365	1.370	-0.4	121	-0.06	6.51
52	T	2,4-Dinitrotoluene	0.404	0.415	-2.7	113	-0.06	6.93
53	C	Acenaphthene	1.252	1.231	1.7	113	-0.07	6.75
54	P	2,4-Dinitrophenol	0.199	0.218	-9.5	121	-0.06	6.80
55	T	Dibenzofuran	1.721	1.727	-0.3	114	-0.07	6.89
56	M	2,6-Dinitrotoluene	0.309	0.316	-2.3	119	-0.06	6.58
57	P	4-Nitrophenol	0.266	0.266	0.0	112	-0.06	6.86
58	T	2,3,4,6-Tetrachlorophenol	0.357	0.378	-5.9	118	-0.07	7.04
59	T	Fluorene	1.382	1.370	0.9	113	-0.08	7.20
60	T	4-Chlorophenyl-phenylethe	0.690	0.683	1.0	113	-0.07	7.20
61	T	Diethylphthalate	1.330	1.320	0.8	113	-0.06	7.14
62	T	2-nitroaniline	0.392	0.411	-4.8	121	-0.06	6.34
63	T	3-nitroaniline	0.346	0.345	0.3	117	-0.06	6.71
64	T	4-nitroaniline	0.348	0.350	-0.6	112	-0.07	7.27
65		Acenaphthene-d10a	1.000	1.000	0.0	67	-0.14	6.72
66		1,1'-Biphenyl			-----NA-----			
67	I	Phenanthrene-d10	1.000	1.000	0.0	113	-0.08	8.11
68	T	4,6-Dinitro-2-methylpheno	0.151	0.166	-9.9	119	-0.06	7.31
69	C	n-Nitrosodiphenylamine	0.584	0.578	1.0	114	-0.07	7.32
70	T	1,2-Diphenylhydrazine	0.863	0.819	5.1	106	-0.07	7.34
71	S	2,4,6-Tribromophenol	0.129	0.130	-0.8	119	-0.07	7.45
72	T	4-Bromophenyl-phenylether	0.245	0.247	-0.8	116	-0.08	7.65
73	T	Hexachlorobenzene	0.261	0.258	1.1	114	-0.08	7.81
74	C	Pentachlorophenol	0.168	0.175	-4.2	115	-0.07	7.99
75	T	Phenanthrene	1.180	1.181	-0.1	114	-0.08	8.14
76	T	Anthracene	1.228	1.224	0.3	113	-0.08	8.18
77	T	Carbazole	1.100	1.104	-0.4	111	-0.08	8.35
78	T	Di-n-butylphthalate	1.311	1.360	-3.7	113	-0.08	8.75
79	C	Fluoranthene	1.206	1.301	-7.9	115	-0.08	9.41
80	I	Phenanthrene-d10a	1.000	1.000	0.0	65	-0.16	8.11
81		Atrazine			-----NA-----			
82	I	Chrysene-d12	1.000	1.000	0.0	132	-0.08	11.07
83	T	Benzidine	0.525	0.480	8.6	120	-0.08	9.57
84	M	Pyrene	1.306	1.284	1.7	115	-0.08	9.66
85	S	Terphenyl-d14	0.901	0.880	2.3	115	-0.08	9.84
86		3,3-Dimethylbenzidine	0.626	0.554	11.5	123	-0.08	10.41
87	T	Butylbenzylphthalate	0.523	0.538	-2.9	118	-0.08	10.45
88	T	3,3'-Dichlorobenzidine	0.443	0.465	-5.0	133	-0.08	11.05
89	T	Benzo[a]anthracene	1.110	1.127	-1.5	131	-0.09	11.04
90	T	Chrysene	1.080	1.087	-0.6	132	-0.09	11.10
91	T	bis(2-Ethylhexyl)phthalat	0.769	0.766	0.4	135	-0.08	11.14
92	I	Perylene-d12	1.000	1.000	0.0	115	-0.09	12.65
93	C	Di-n-octylphthalate	1.311	1.463	-11.6	126	-0.08	11.82

9.7.7
9

Continuing Calibration Summary

Job Number: JB37361

Sample: MSR1134-CC1128

Account: ALNJ Accutest New Jersey

Lab FileID: R31162.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

94	T	Benzo[b]fluoranthene	1.271	1.312	-3.2	112	-0.09	12.26
95	T	Benzo[k]fluoranthene	1.136	1.255	-10.5	126	-0.08	12.29
96	C	Benzo[a]pyrene	1.116	1.202	-7.7	120	-0.09	12.60
97	T	Indeno[1,2,3-cd]pyrene	1.385	1.155	16.6	95	-0.11	13.77
98	T	Dibenz[a,h]anthracene	1.110	0.948	14.6	96	-0.11	13.78
99	T	Benzo[g,h,i]perylene	1.120	0.931	16.9	94	-0.12	14.08

(#) = Out of Range

SPCC's out = 0 CCC's out = 0

R30975.D R130530_8270+.m

Tue Jun 04 15:55:03 2013

GC/MS Semi-volatiles

Raw Data

(Accutest Labs of New England, Inc.)

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\R130602\
 Data File : R31129.D
 Acq On : 2 Jun 2013 2:20 pm
 Operator : AkinA
 Sample : JB37361-1
 Misc : OP33425,MSr1132,20.43,,,1,1
 ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jun 12 11:46:31 2013
 Quant Method : C:\msdchem\1\methods\R130521_8270+.m
 Quant Title : SW-864 Method 8270
 QLast Update : Tue May 28 18:15:12 2013
 Response via : Initial Calibration

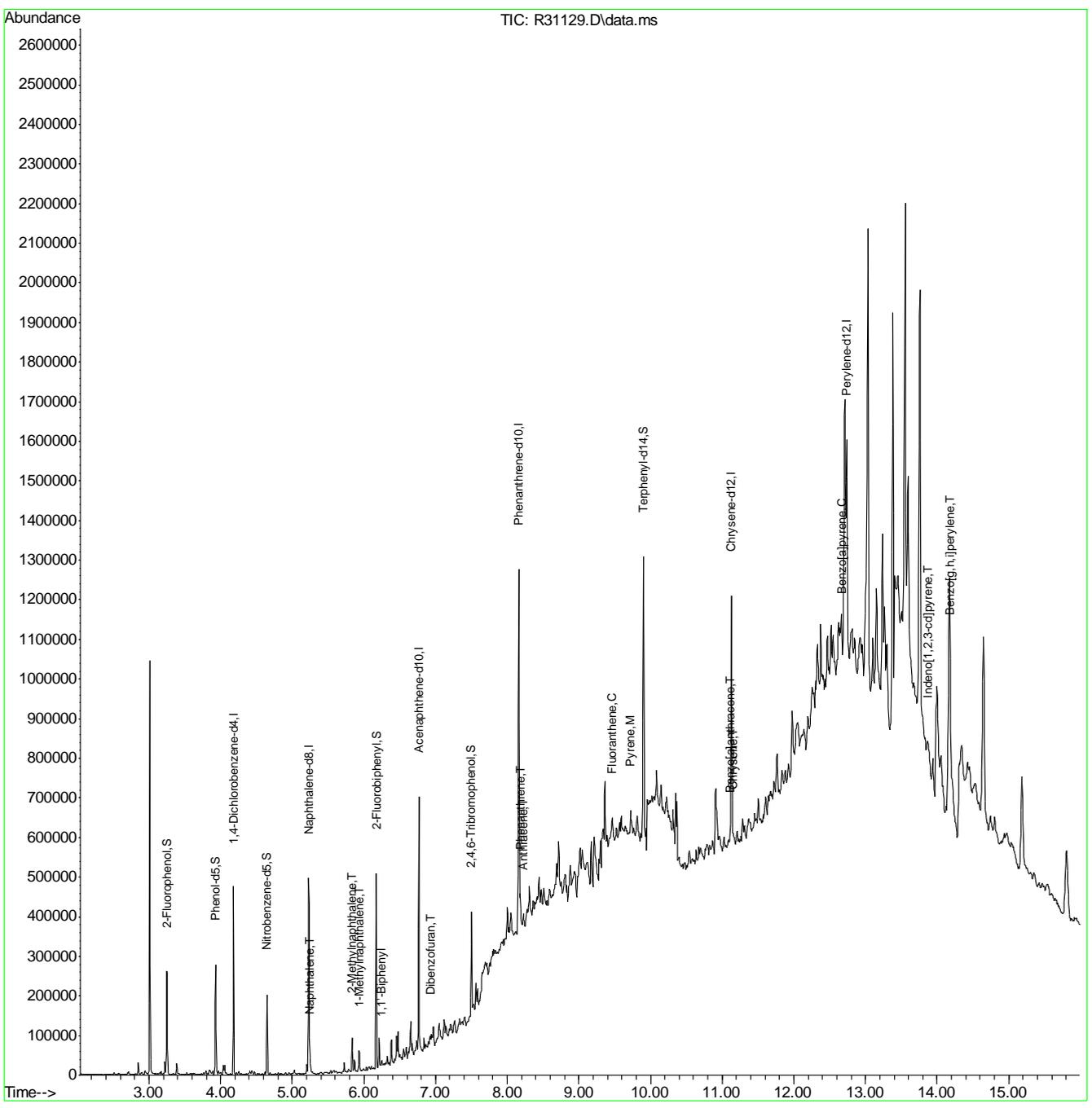
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.184	152	70691	40.00	ppm	-0.09
24) Naphthalene-d8	5.231	136	202970	40.00	ppm	-0.10
43) Acenaphthene-d10	6.766	164	114884	40.00	ppm	-0.10
66) Phenanthrene-d10	8.160	188	312845	40.00	ppm	-0.10
80) Chrysene-d12	11.130	240	249374	40.00	ppm	-0.11
90) Perylene-d12	12.736	264	247966	40.00	ppm	-0.09
System Monitoring Compounds						
7) 2-Fluorophenol	3.254	112	68889	33.46	ppm	-0.07
Spiked Amount	100.000	Range	30 - 130	Recovery	=	33.46%
9) Phenol-d5	3.931	99	81324	32.41	ppm	-0.07
Spiked Amount	100.000	Range	30 - 130	Recovery	=	32.41%
25) Nitrobenzene-d5	4.648	82	53848	33.15	ppm	-0.09
Spiked Amount	50.000	Range	30 - 130	Recovery	=	66.30%
48) 2-Fluorobiphenyl	6.172	172	133864	34.14	ppm	-0.09
Spiked Amount	50.000	Range	30 - 130	Recovery	=	68.28%
70) 2,4,6-Tribromophenol	7.501	330	25783	35.14	ppm	-0.10
Spiked Amount	100.000	Range	30 - 130	Recovery	=	35.14%
83) Terphenyl-d14	9.901	244	227539	44.51	ppm	-0.11
Spiked Amount	50.000	Range	30 - 130	Recovery	=	89.02%
Target Compounds						
34) Naphthalene	5.248	128	12824	2.50	ppm	98
39) 2-Methylnaphthalene	5.836	142	20512	5.84	ppm	97
40) 1-Methylnaphthalene	5.931	142	10595	3.12	ppm	97
55) Dibenzofuran	6.931	168	2911	0.63	ppm	80
65) 1,1'-Biphenyl	6.248	154	4176	1.03	ug/mL#	88
74) Phenanthrene	8.183	178	31759	3.72	ppm	99
75) Anthracene	8.225	178	5602	0.65	ppm	81
78) Fluoranthene	9.466	202	8925	0.98	ppm	96
82) Pyrene	9.719	202	26715	3.79	ppm	97
87) Benzo[a]anthracene	11.107	228	6303	1.01	ppm	97
88) Chrysene	11.154	228	9923	1.52	ppm	89
94) Benzo[a]pyrene	12.671	252	6295	0.99	ppm	88
95) Indeno[1,2,3-cd]pyrene	13.871	276	6255	0.82	ppm	94
97) Benzo[g,h,i]perylene	14.183	276	18943	3.01	ppm	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

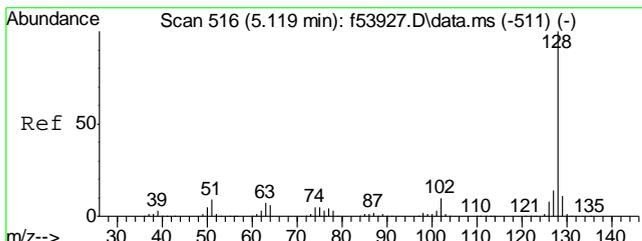
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\R130602\
Data File : R31129.D
Acq On : 2 Jun 2013 2:20 pm
Operator : AkinA
Sample : JB37361-1
Misc : OP33425,MSr1132,20.43,,,1,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jun 12 11:46:31 2013
Quant Method : C:\msdchem\1\methods\R130521_8270+.m
Quant Title : SW-864 Method 8270
QLast Update : Tue May 28 18:15:12 2013
Response via : Initial Calibration

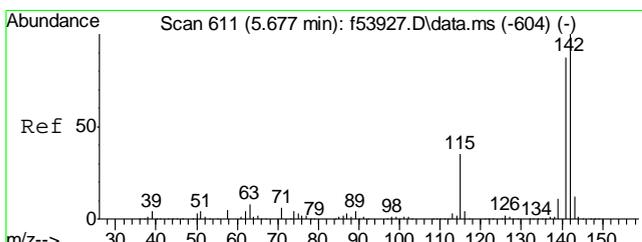
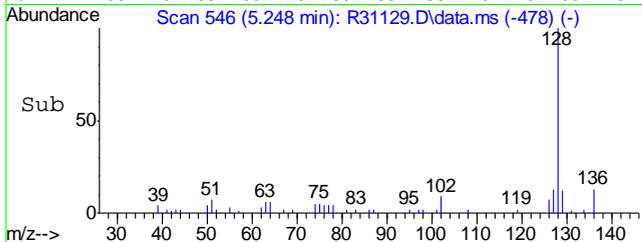
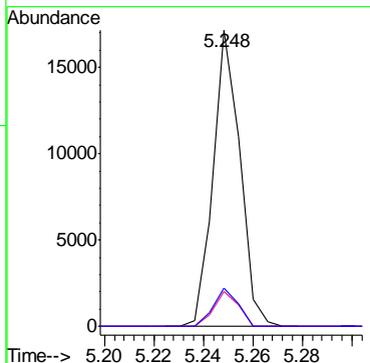
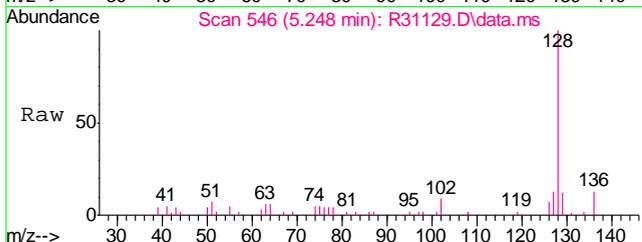


10.1.1 10



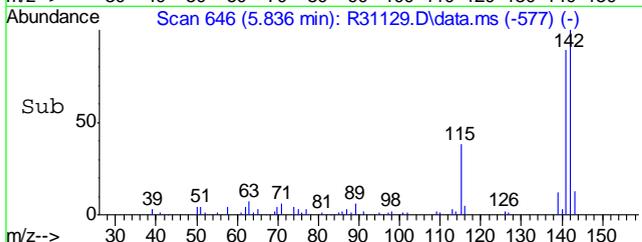
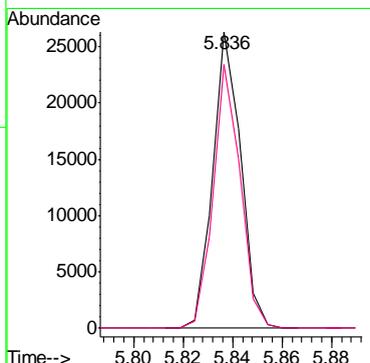
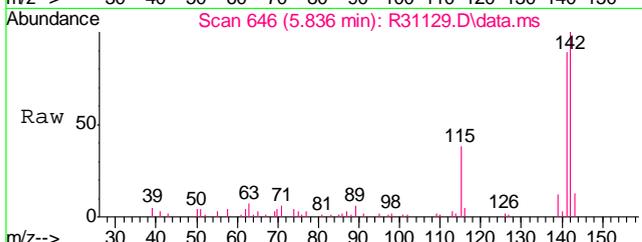
#34
 Naphthalene
 Concen: 2.50 ppm
 RT: 5.248 min Scan# 546
 Delta R.T. -0.097 min
 Lab File: R31129.D
 Acq: 2 Jun 2013 2:20 pm

Tgt Ion	Resp	Lower	Upper
128	12824	100	
129	11.9	0.0	40.6
127	12.8	0.0	43.1

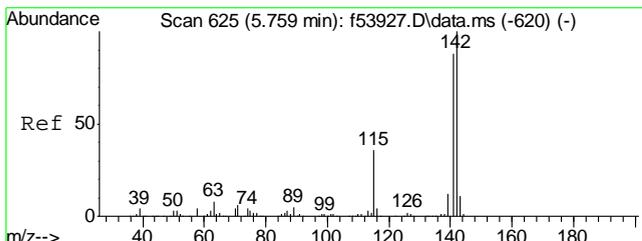


#39
 2-Methylnaphthalene
 Concen: 5.84 ppm
 RT: 5.836 min Scan# 646
 Delta R.T. -0.091 min
 Lab File: R31129.D
 Acq: 2 Jun 2013 2:20 pm

Tgt Ion	Resp	Lower	Upper
142	20512	100	
141	89.0	56.0	116.0

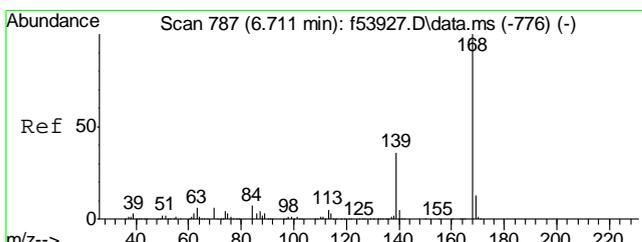
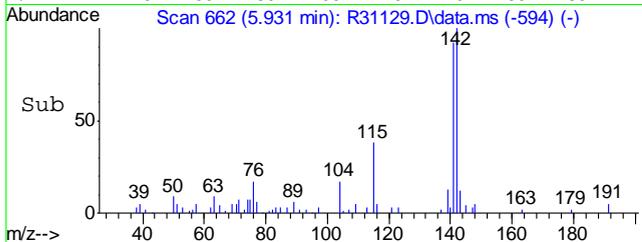
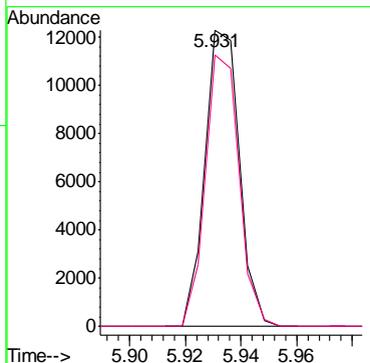
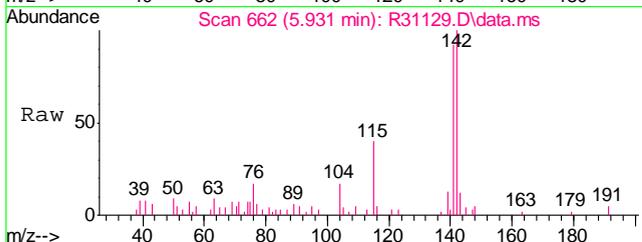


10.1.1
10



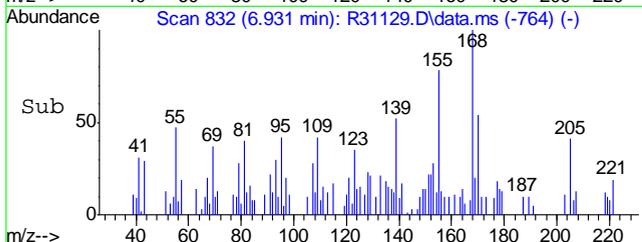
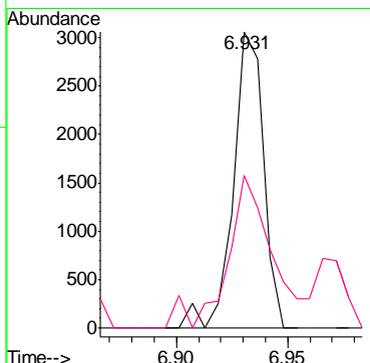
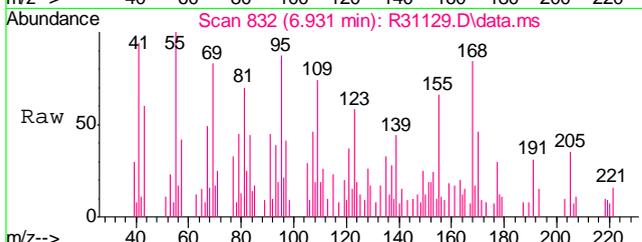
#40
 1-Methylnaphthalene
 Concen: 3.12 ppm
 RT: 5.931 min Scan# 662
 Delta R.T. -0.097 min
 Lab File: R31129.D
 Acq: 2 Jun 2013 2:20 pm

Tgt Ion:142 Resp: 10595
 Ion Ratio Lower Upper
 142 100
 141 91.8 68.8 108.8

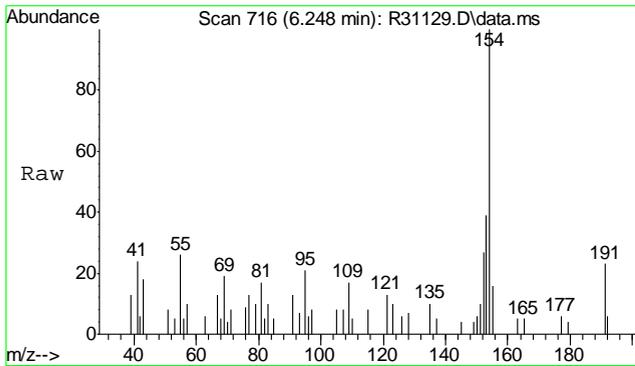


#55
 Dibenzofuran
 Concen: 0.63 ppm
 RT: 6.931 min Scan# 832
 Delta R.T. -0.097 min
 Lab File: R31129.D
 Acq: 2 Jun 2013 2:20 pm

Tgt Ion:168 Resp: 2911
 Ion Ratio Lower Upper
 168 100
 139 51.6 9.2 69.2

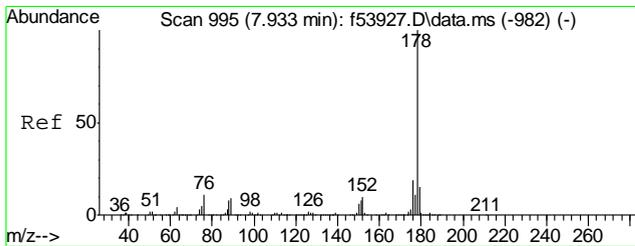
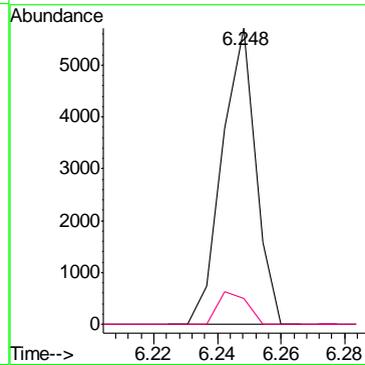
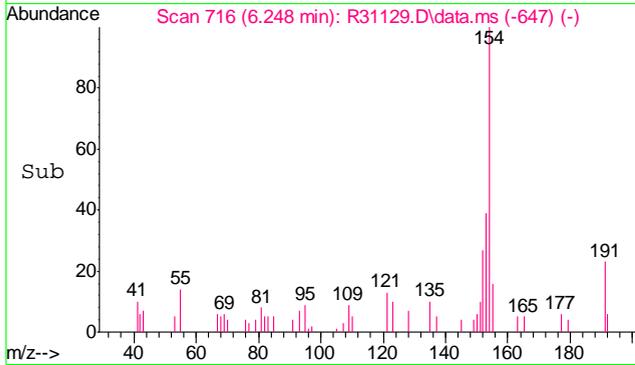


10.1.1 10



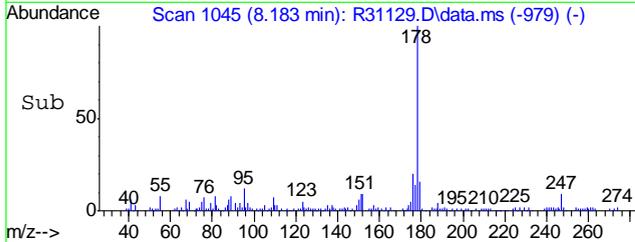
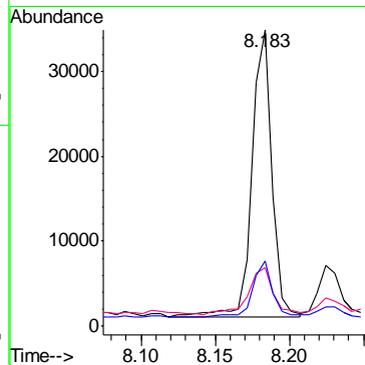
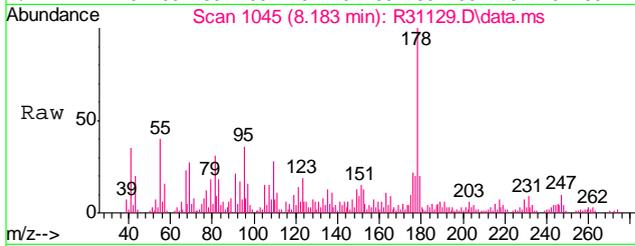
#65
 1,1'-Biphenyl
 Concen: 1.03 ug/mL
 RT: 6.248 min Scan# 716
 Delta R.T. -0.091 min
 Lab File: R31129.D
 Acq: 2 Jun 2013 2:20 pm

Tgt Ion:154	Resp:	4176
Ion Ratio	Lower	Upper
154	100	
76	8.6	10.9 16.3#

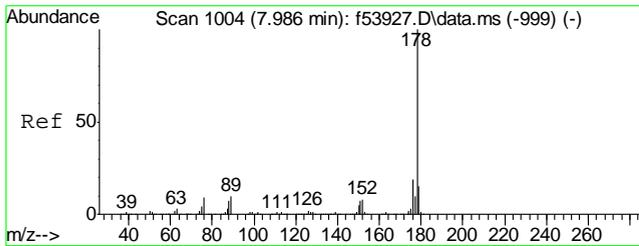


#74
 Phenanthrene
 Concen: 3.72 ppm
 RT: 8.183 min Scan# 1045
 Delta R.T. -0.109 min
 Lab File: R31129.D
 Acq: 2 Jun 2013 2:20 pm

Tgt Ion:178	Resp:	31759
Ion Ratio	Lower	Upper
178	100	
179	15.8	0.0 45.1
176	19.5	0.0 49.3

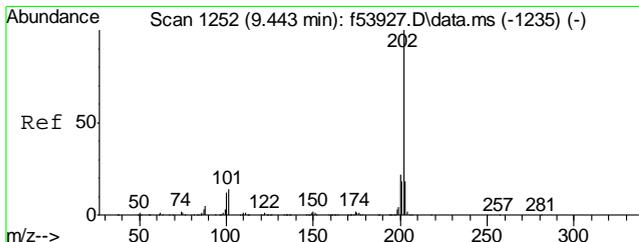
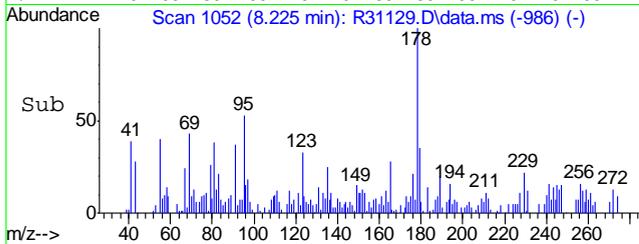
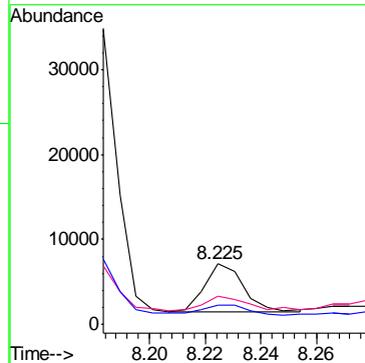
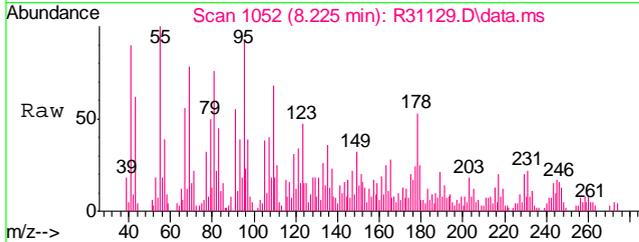


10.1.1
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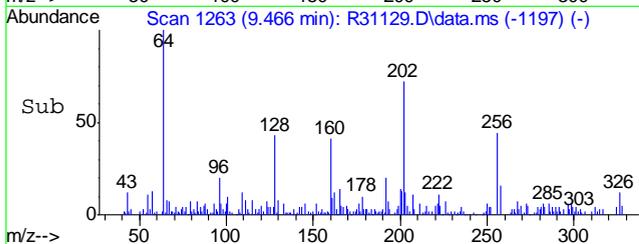
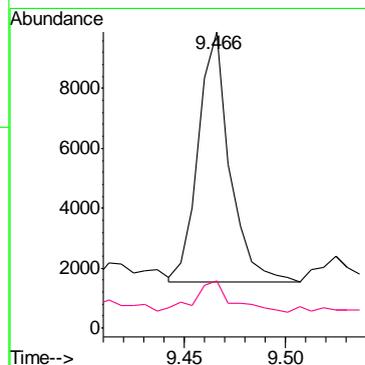
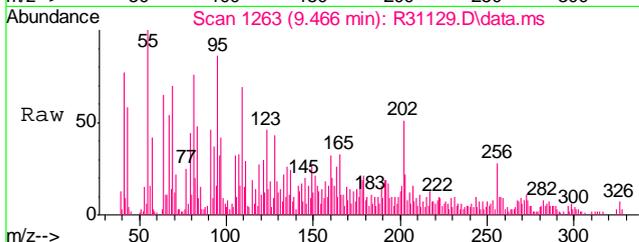
#75
 Anthracene
 Concen: 0.65 ppm
 RT: 8.225 min Scan# 1052
 Delta R.T. -0.109 min
 Lab File: R31129.D
 Acq: 2 Jun 2013 2:20 pm

Tgt Ion	Resp	Lower	Upper
178	5602	100	
179	31.2	0.0	45.3
176	19.6	0.0	48.5

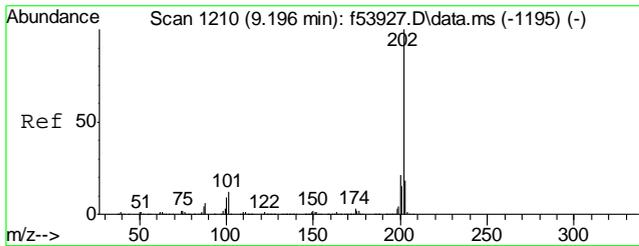


#78
 Fluoranthene
 Concen: 0.98 ppm
 RT: 9.466 min Scan# 1263
 Delta R.T. -0.109 min
 Lab File: R31129.D
 Acq: 2 Jun 2013 2:20 pm

Tgt Ion	Resp	Lower	Upper
202	8925	100	
101	10.6	0.0	42.1

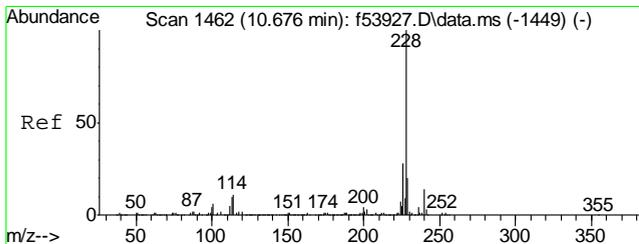
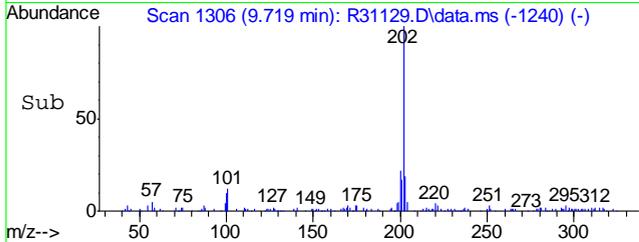
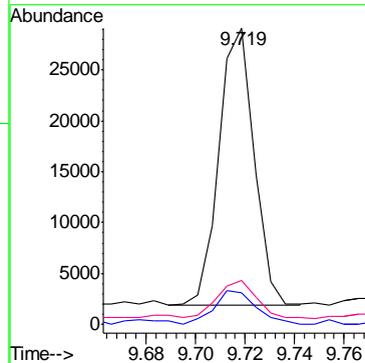
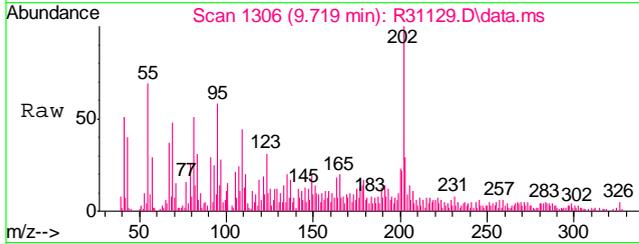


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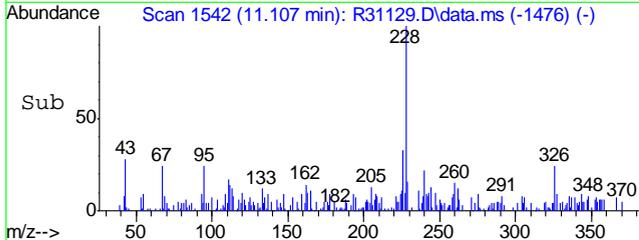
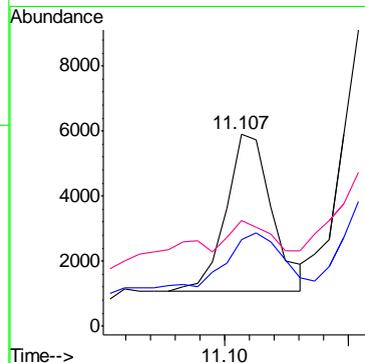
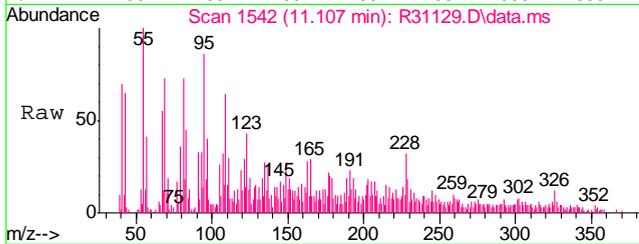
#82
 Pyrene
 Concen: 3.79 ppm
 RT: 9.719 min Scan# 1306
 Delta R.T. -0.109 min
 Lab File: R31129.D
 Acq: 2 Jun 2013 2:20 pm

Tgt Ion	Resp	Lower	Upper
202	26715	100	
101	13.2	0.0	44.8
100	11.3	0.0	41.9

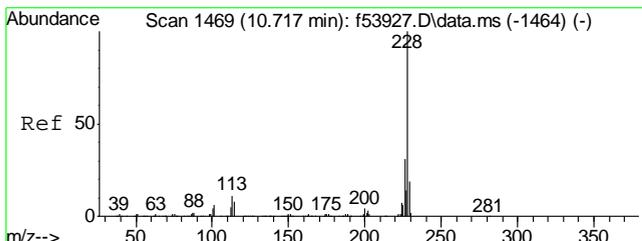


#87
 Benzo[a]anthracene
 Concen: 1.01 ppm
 RT: 11.107 min Scan# 1542
 Delta R.T. -0.109 min
 Lab File: R31129.D
 Acq: 2 Jun 2013 2:20 pm

Tgt Ion	Resp	Lower	Upper
228	6303	100	
229	19.4	0.0	49.6
226	29.7	0.0	56.8

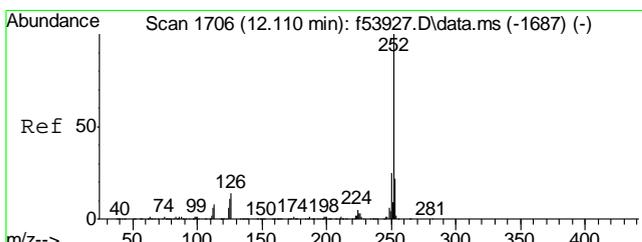
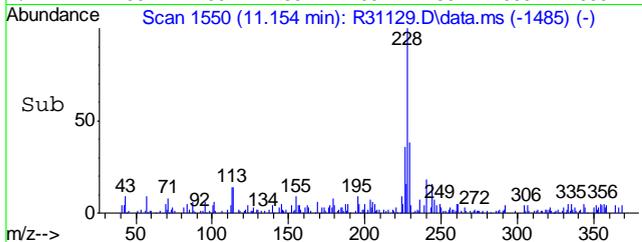
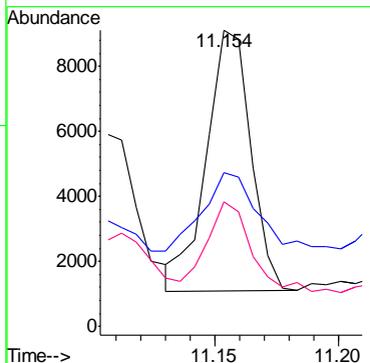
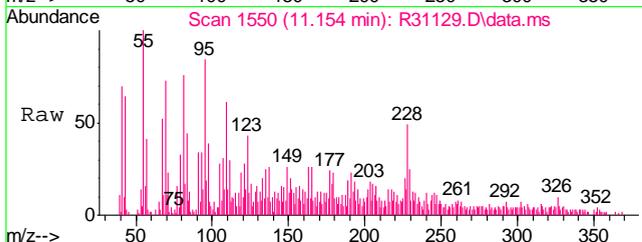


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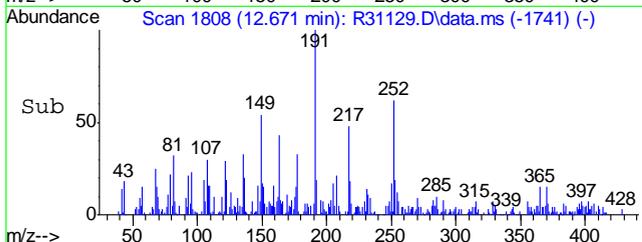
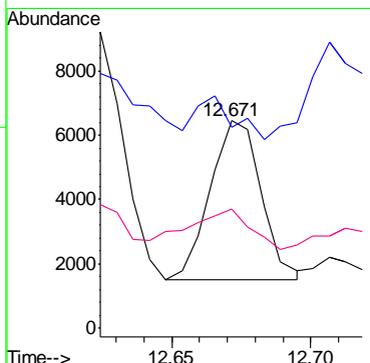
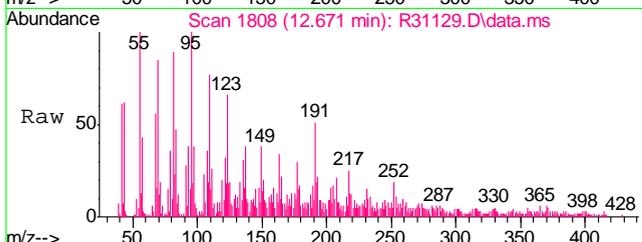
#88
 Chrysene
 Concen: 1.52 ppm
 RT: 11.154 min Scan# 1550
 Delta R.T. -0.115 min
 Lab File: R31129.D
 Acq: 2 Jun 2013 2:20 pm

Tgt Ion	Resp	Lower	Upper
228	100		
226	31.0	0.0	59.8
229	30.4	0.0	49.7

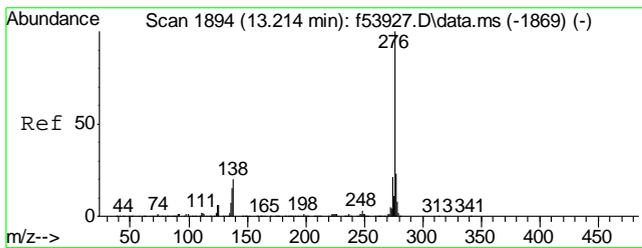


#94
 Benzo[a]pyrene
 Concen: 0.99 ppm
 RT: 12.671 min Scan# 1808
 Delta R.T. -0.103 min
 Lab File: R31129.D
 Acq: 2 Jun 2013 2:20 pm

Tgt Ion	Resp	Lower	Upper
252	100		
253	22.2	0.0	51.5
125	0.0	0.0	41.6

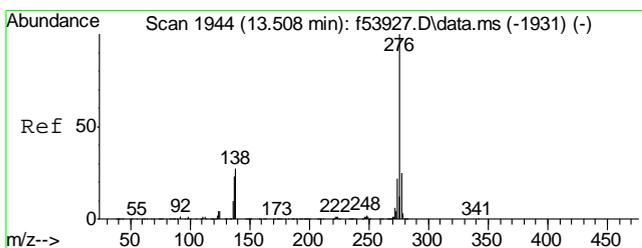
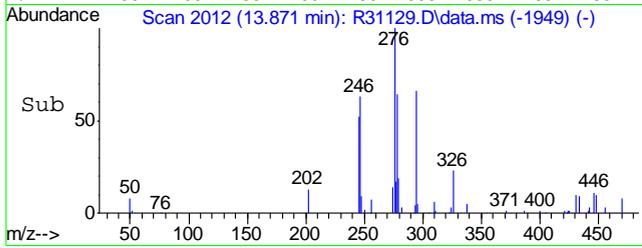
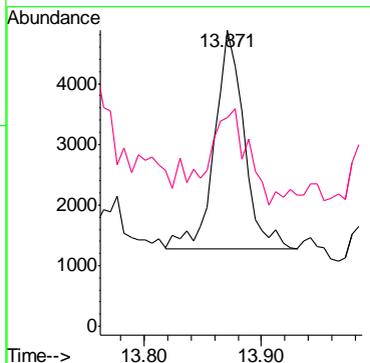
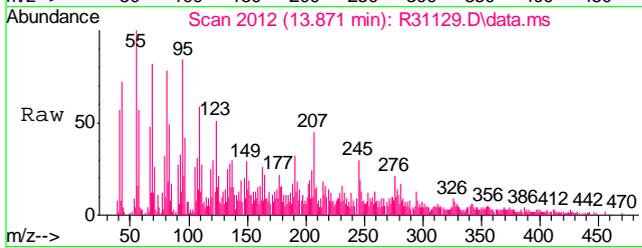


10.1.1
 10



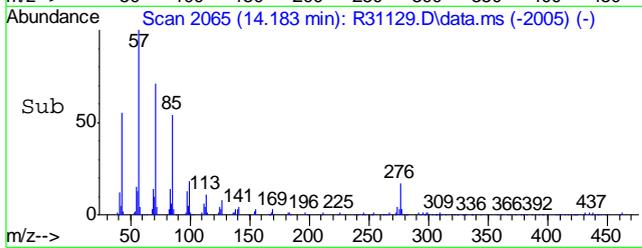
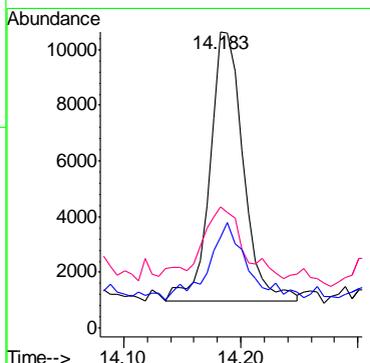
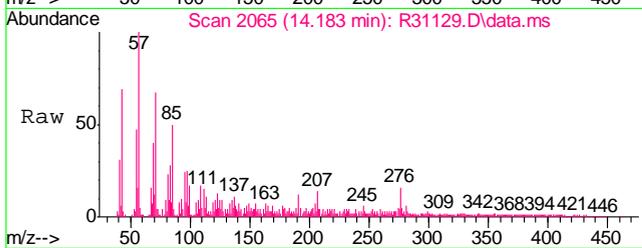
#95
 Indeno[1,2,3-cd]pyrene
 Concen: 0.82 ppm
 RT: 13.871 min Scan# 2012
 Delta R.T. -0.127 min
 Lab File: R31129.D
 Acq: 2 Jun 2013 2:20 pm

Tgt Ion	Resp	Lower	Upper
276	6255	100	
138	35.6	2.0	62.0



#97
 Benzo[g,h,i]perylene
 Concen: 3.01 ppm
 RT: 14.183 min Scan# 2065
 Delta R.T. -0.144 min
 Lab File: R31129.D
 Acq: 2 Jun 2013 2:20 pm

Tgt Ion	Resp	Lower	Upper
276	18943	100	
138	25.0	0.0	54.4
277	23.2	0.0	53.5



10.1.1 10

Quantitation Report (QT Reviewed)

Doug Yargeau
06/14/13 11:23

Data Path : C:\msdchem\1\data\R130602\
 Data File : R31130.D
 Acq On : 2 Jun 2013 2:43 pm
 Operator : AkinA
 Sample : JB37361-2
 Misc : OP33425,MSr1132,20.42,,,1,1
 ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jun 12 11:48:13 2013
 Quant Method : C:\msdchem\1\methods\R130521_8270+.m
 Quant Title : SW-864 Method 8270
 QLast Update : Tue May 28 18:15:12 2013
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)	
Internal Standards							
1) 1,4-Dichlorobenzene-d4	4.184	152	50971	40.00	ppm	-0.09	
24) Naphthalene-d8	5.237	136	199521	40.00	ppm	-0.09	
43) Acenaphthene-d10	6.772	164	111681	40.00	ppm	-0.09	
66) Phenanthrene-d10	8.166	188	275290	40.00	ppm	-0.10	
80) Chrysene-d12	11.136	240	263283	40.00	ppm	-0.10	
90) Perylene-d12	12.736	264	341740	40.00	ppm	-0.09	
System Monitoring Compounds							
7) 2-Fluorophenol	3.255	112	47117	31.74	ppm	-0.07	
Spiked Amount	100.000	Range	30 - 130	Recovery	=	31.74%	
9) Phenol-d5	3.931	99	61391	33.93	ppm	-0.07	
Spiked Amount	100.000	Range	30 - 130	Recovery	=	33.93%	
25) Nitrobenzene-d5	4.654	82	56726	35.52	ppm	-0.09	
Spiked Amount	50.000	Range	30 - 130	Recovery	=	71.04%	
48) 2-Fluorobiphenyl	6.172	172	139610	36.62	ppm	-0.09	
Spiked Amount	50.000	Range	30 - 130	Recovery	=	73.24%	
70) 2,4,6-Tribromophenol	7.507	330	33370	51.68	ppm	-0.09	
Spiked Amount	100.000	Range	30 - 130	Recovery	=	51.68%	
83) Terphenyl-d14	9.913	244	196486	36.41	ppm	-0.10	
Spiked Amount	50.000	Range	30 - 130	Recovery	=	72.82%	
Target Compounds							
39) 2-Methylnaphthalene	5.843	142	2436	0.70	ppm		83
40) 1-Methylnaphthalene	5.937	142	2505	0.75	ppm		86
55) Dibenzofuran	6.937	168	5331m	1.18	ppm		
74) Phenanthrene	8.190	178	51730	6.88	ppm		97
75) Anthracene	8.231	178	7383m	0.97	ppm		
82) Pyrene	9.725	202	15774	2.12	ppm		96
87) Benzo[a]anthracene	11.113	228	7710	1.17	ppm		72
88) Chrysene	11.160	228	14292	2.08	ppm		90
94) Benzo[a]pyrene	12.672	252	5673	0.65	ppm		86
95) Indeno[1,2,3-cd]pyrene	13.866	276	2328	0.22	ppm		87
97) Benzo[g,h,i]perylene	14.177	276	3350	0.39	ppm		81

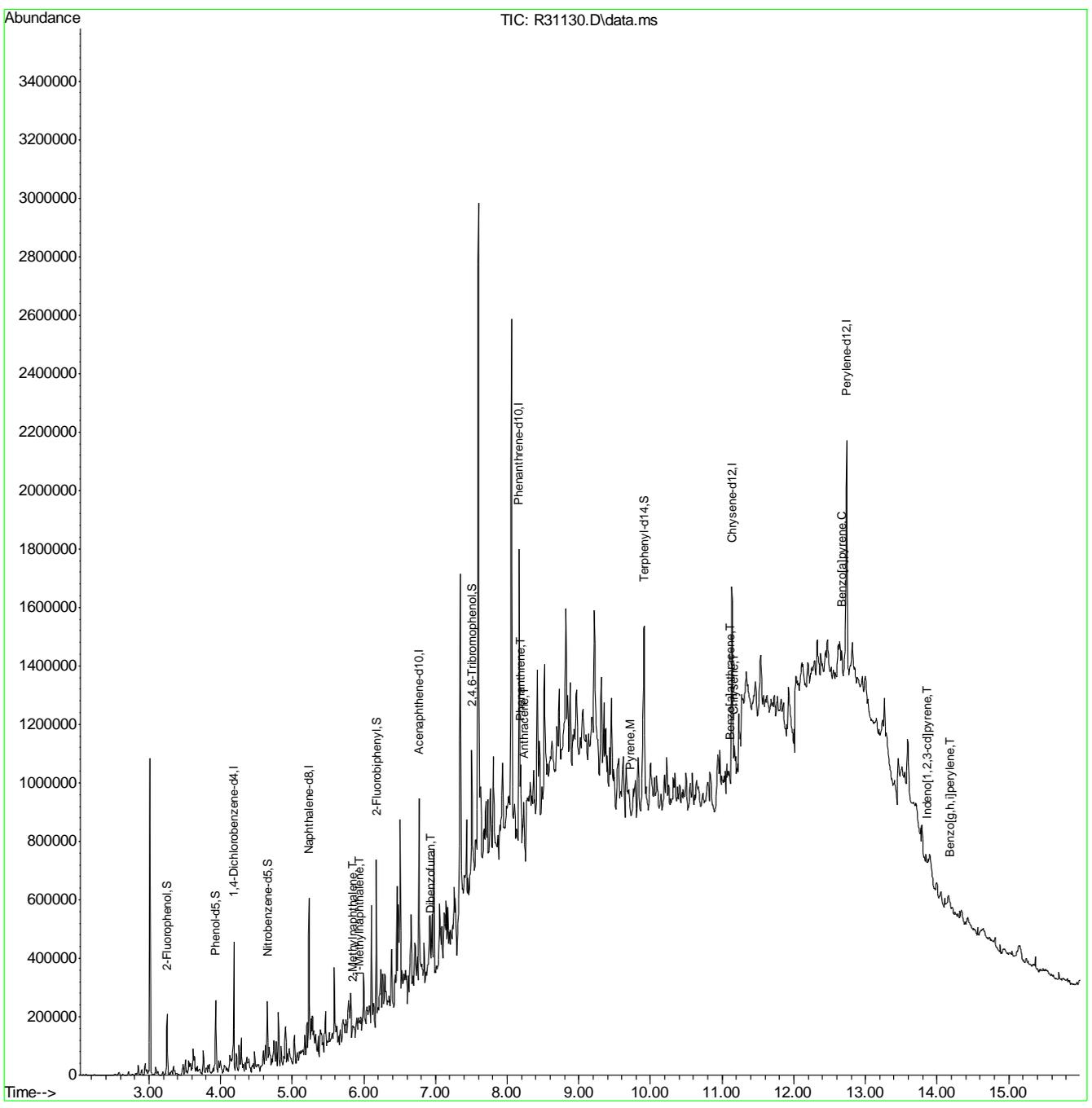
(#) = qualifier out of range (m) = manual integration (+) = signals summed

10.12
10

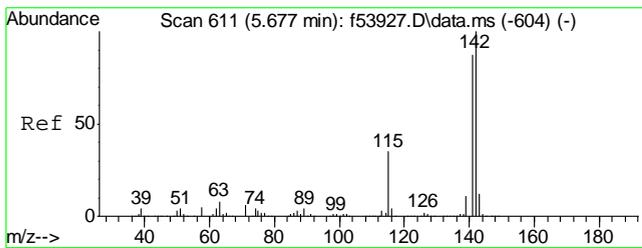
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\R130602\
Data File : R31130.D
Acq On : 2 Jun 2013 2:43 pm
Operator : AkinA
Sample : JB37361-2
Misc : OP33425,MSr1132,20.42,,,1,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jun 12 11:48:13 2013
Quant Method : C:\msdchem\1\methods\R130521_8270+.m
Quant Title : SW-864 Method 8270
QLast Update : Tue May 28 18:15:12 2013
Response via : Initial Calibration

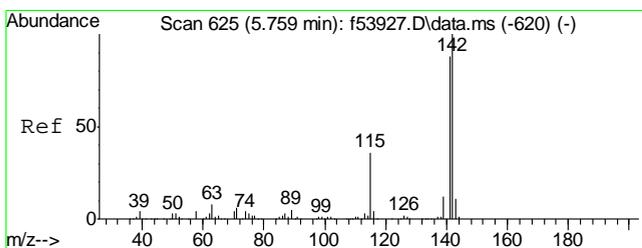
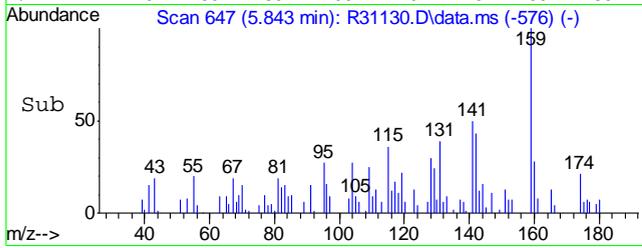
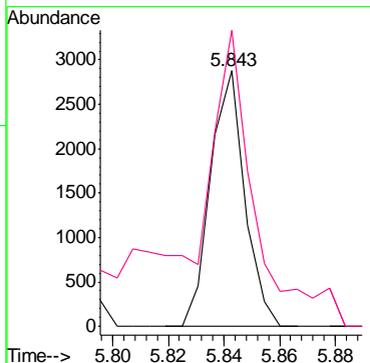
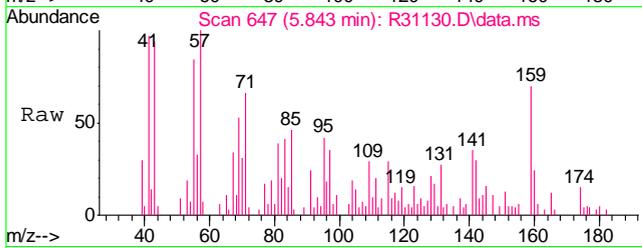


10.12 10



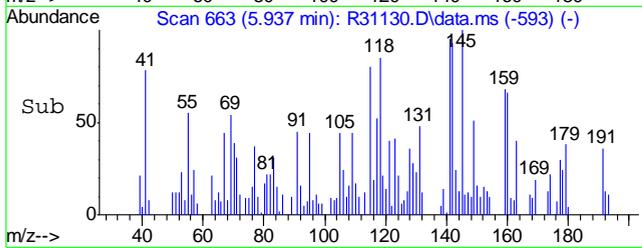
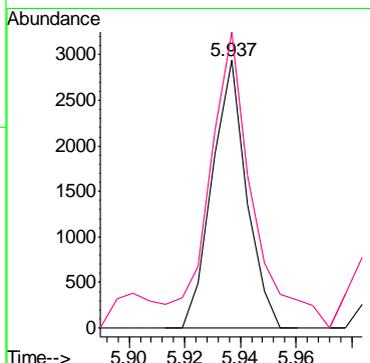
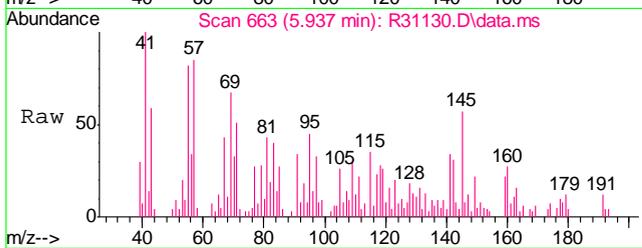
#39
 2-Methylnaphthalene
 Concen: 0.70 ppm
 RT: 5.843 min Scan# 647
 Delta R.T. -0.085 min
 Lab File: R31130.D
 Acq: 2 Jun 2013 2:43 pm

Tgt Ion:142 Resp: 2436
 Ion Ratio Lower Upper
 142 100
 141 101.6 56.0 116.0

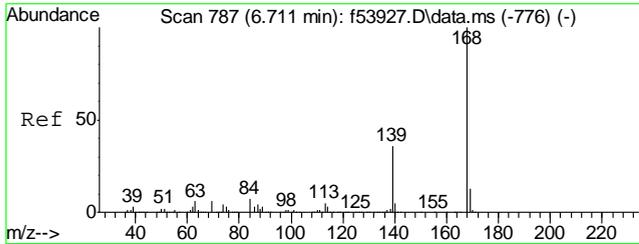


#40
 1-Methylnaphthalene
 Concen: 0.75 ppm
 RT: 5.937 min Scan# 663
 Delta R.T. -0.091 min
 Lab File: R31130.D
 Acq: 2 Jun 2013 2:43 pm

Tgt Ion:142 Resp: 2505
 Ion Ratio Lower Upper
 142 100
 141 101.8 68.8 108.8

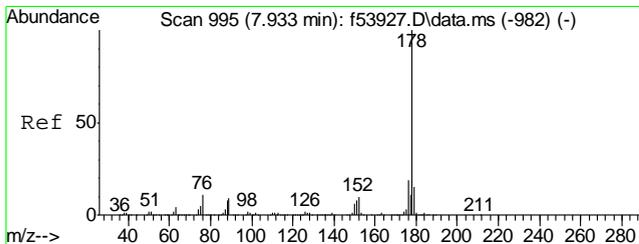
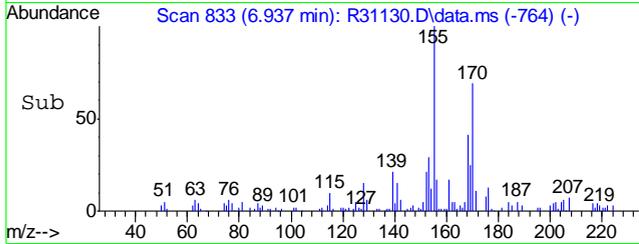
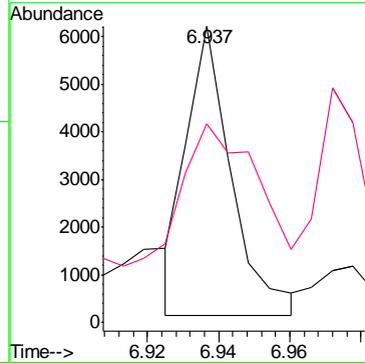
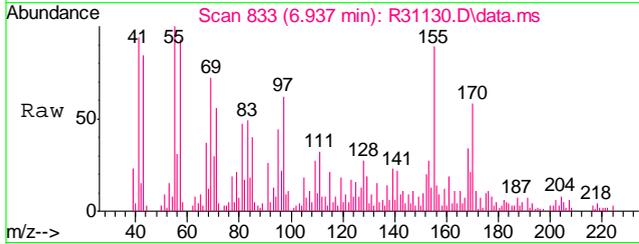


10.12 10



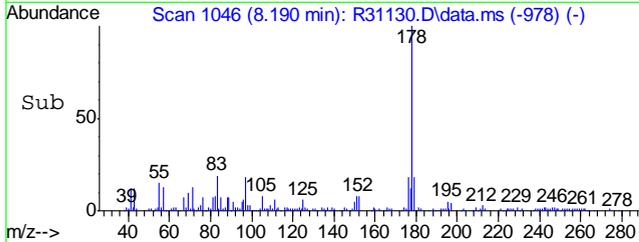
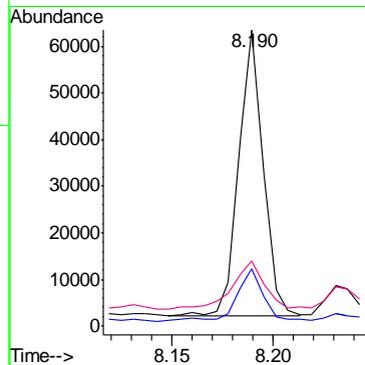
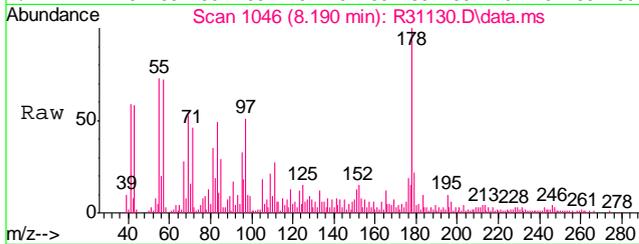
#55
 Dibenzofuran
 Concen: 1.18 ppm m
 RT: 6.937 min Scan# 833
 Delta R.T. -0.091 min
 Lab File: R31130.D
 Acq: 2 Jun 2013 2:43 pm

Tgt Ion	Ratio	Lower	Upper
168	100		
139	67.2	9.2	69.2

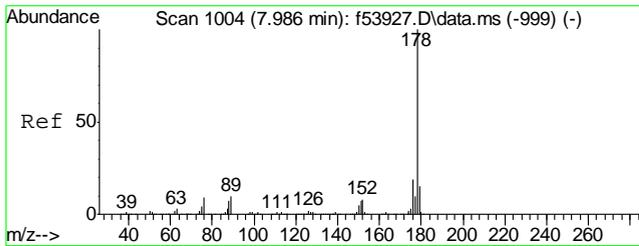


#74
 Phenanthrene
 Concen: 6.88 ppm
 RT: 8.190 min Scan# 1046
 Delta R.T. -0.103 min
 Lab File: R31130.D
 Acq: 2 Jun 2013 2:43 pm

Tgt Ion	Ratio	Lower	Upper
178	100		
179	16.6	0.0	45.1
176	17.9	0.0	49.3

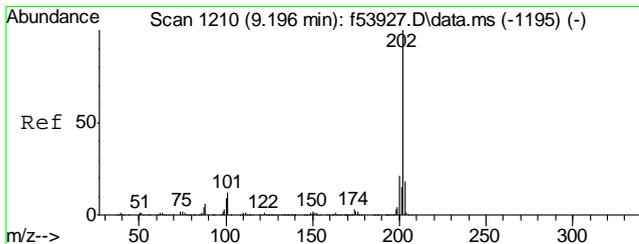
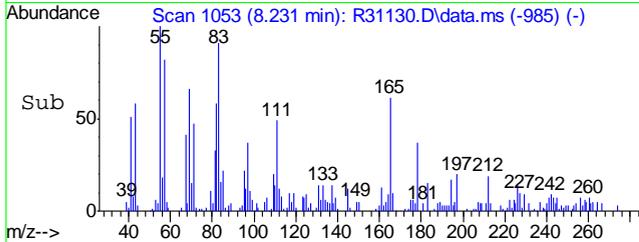
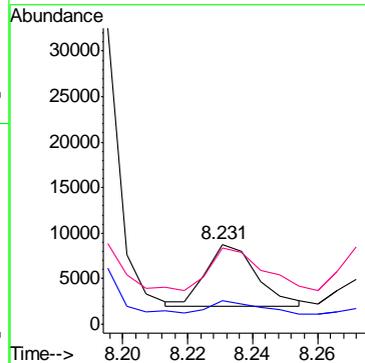
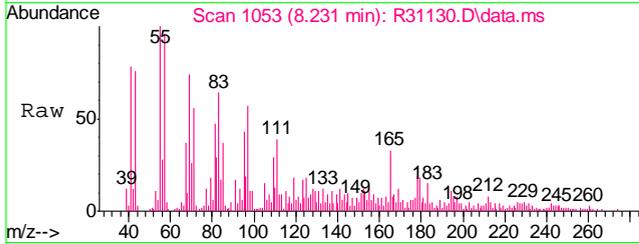


10.12
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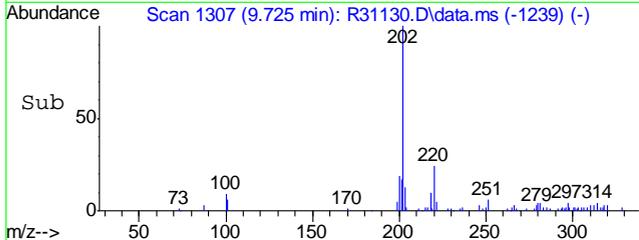
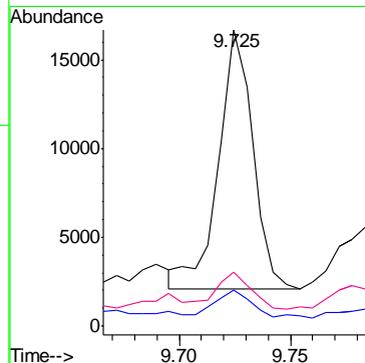
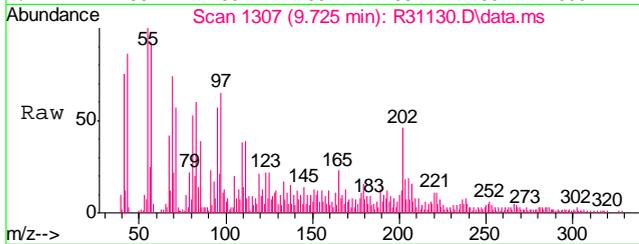
#75
 Anthracene
 Concen: 0.97 ppm m
 RT: 8.231 min Scan# 1053
 Delta R.T. -0.103 min
 Lab File: R31130.D
 Acq: 2 Jun 2013 2:43 pm

Tgt Ion	Resp	Lower	Upper
178	100		
179	96.1	0.0	45.3#
176	29.5	0.0	48.5

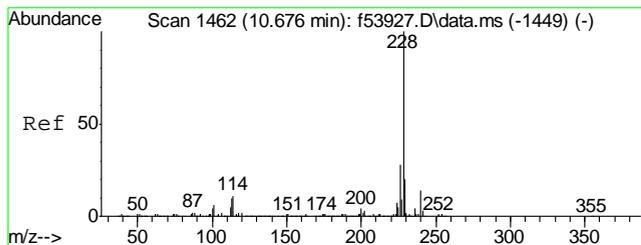


#82
 Pyrene
 Concen: 2.12 ppm
 RT: 9.725 min Scan# 1307
 Delta R.T. -0.103 min
 Lab File: R31130.D
 Acq: 2 Jun 2013 2:43 pm

Tgt Ion	Resp	Lower	Upper
202	100		
101	13.4	0.0	44.8
100	9.8	0.0	41.9

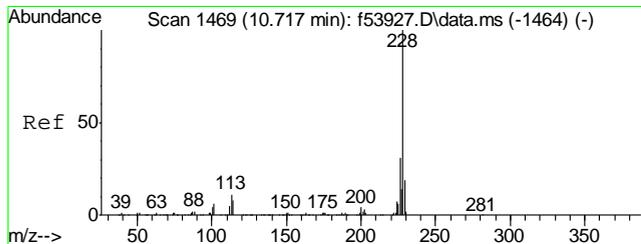
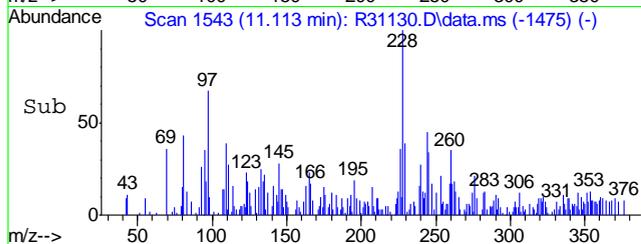
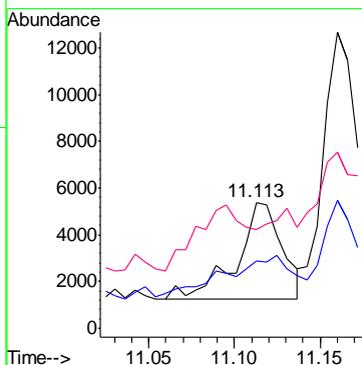
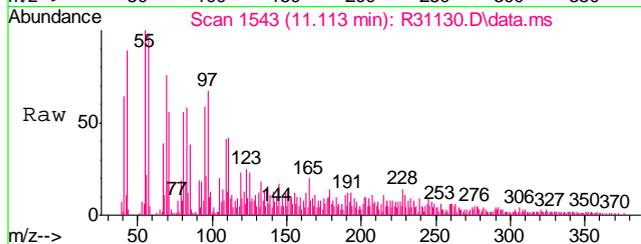


10.12 10



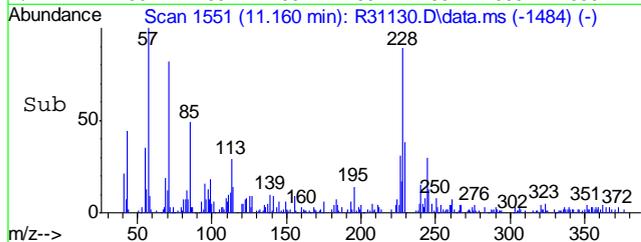
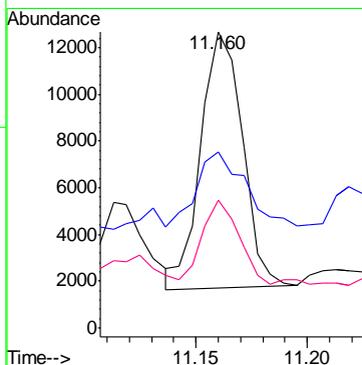
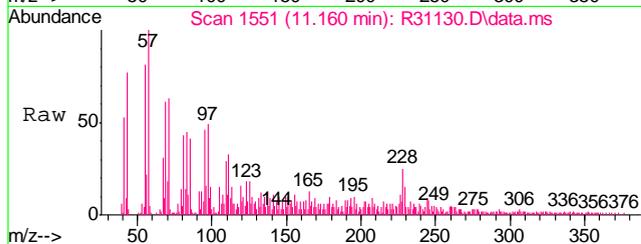
#87
 Benzo[a]anthracene
 Concen: 1.17 ppm
 RT: 11.113 min Scan# 1543
 Delta R.T. -0.103 min
 Lab File: R31130.D
 Acq: 2 Jun 2013 2:43 pm

Tgt Ion	Resp	Lower	Upper
228	7710		
229	42.3	0.0	49.6
226	33.1	0.0	56.8

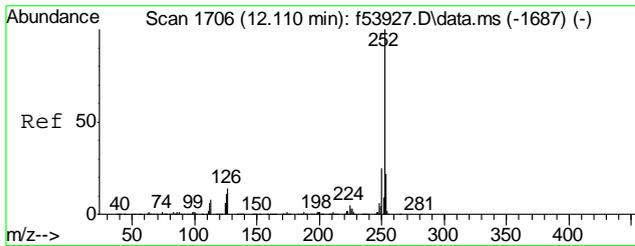


#88
 Chrysene
 Concen: 2.08 ppm
 RT: 11.160 min Scan# 1551
 Delta R.T. -0.109 min
 Lab File: R31130.D
 Acq: 2 Jun 2013 2:43 pm

Tgt Ion	Resp	Lower	Upper
228	14292		
226	31.4	0.0	59.8
229	29.4	0.0	49.7

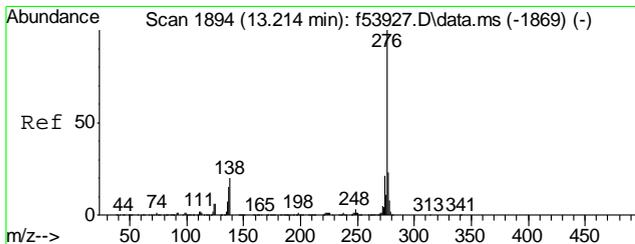
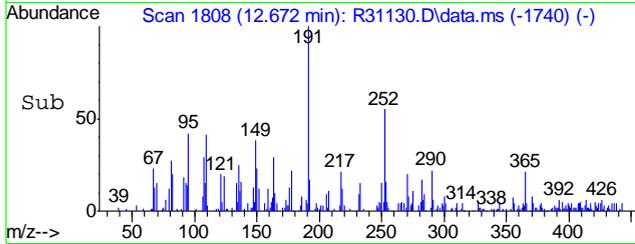
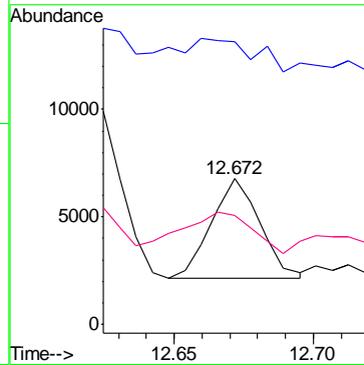
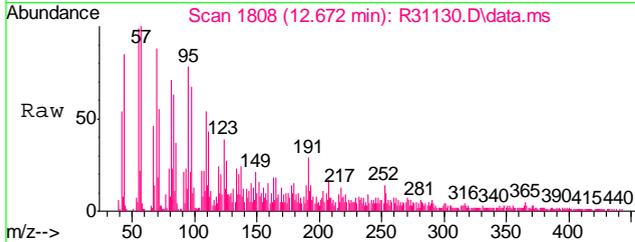


10.12 10



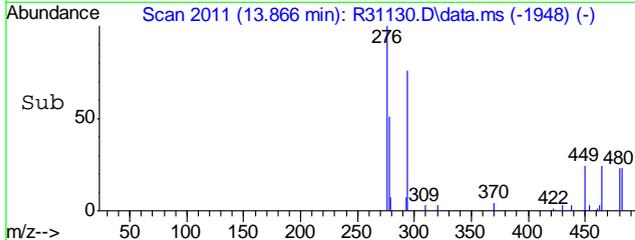
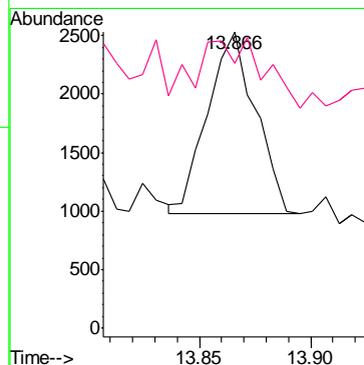
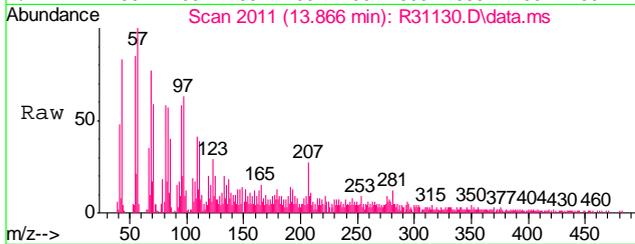
#94
 Benzo[a]pyrene
 Concen: 0.65 ppm
 RT: 12.672 min Scan# 1808
 Delta R.T. -0.103 min
 Lab File: R31130.D
 Acq: 2 Jun 2013 2:43 pm

Tgt Ion	Resp	Lower	Upper
252	100		
253	25.1	0.0	51.5
125	21.3	0.0	41.6

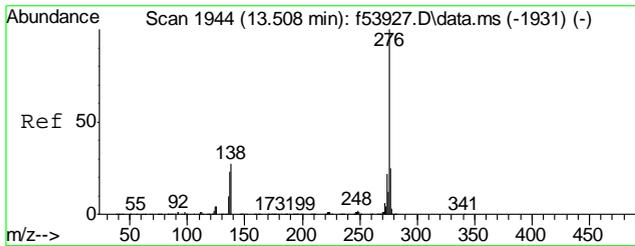


#95
 Indeno[1,2,3-cd]pyrene
 Concen: 0.22 ppm
 RT: 13.866 min Scan# 2011
 Delta R.T. -0.132 min
 Lab File: R31130.D
 Acq: 2 Jun 2013 2:43 pm

Tgt Ion	Resp	Lower	Upper
276	100		
138	24.7	2.0	62.0

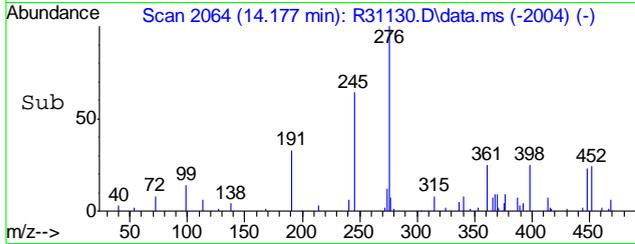
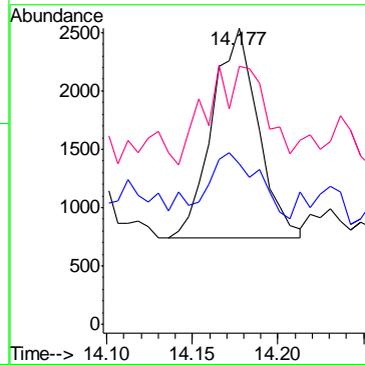
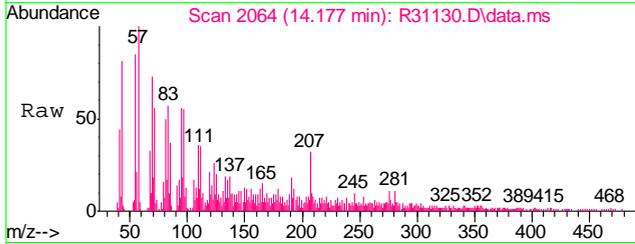


10.12 10



#97
 Benzo[g,h,i]perylene
 Concen: 0.39 ppm
 RT: 14.177 min Scan# 2064
 Delta R.T. -0.150 min
 Lab File: R31130.D
 Acq: 2 Jun 2013 2:43 pm

Tgt Ion	Resp	Lower	Upper
276	100		
138	41.3	0.0	54.4
277	22.1	0.0	53.5



10.1.2 10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\R130602\
 Data File : R31131.D
 Acq On : 2 Jun 2013 3:05 pm
 Operator : AkinA
 Sample : JB37361-3
 Misc : OP33425,MSr1132,20.04,,,1,1
 ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jun 12 11:50:05 2013
 Quant Method : C:\msdchem\1\methods\R130521_8270+.m
 Quant Title : SW-864 Method 8270
 QLast Update : Tue May 28 18:15:12 2013
 Response via : Initial Calibration

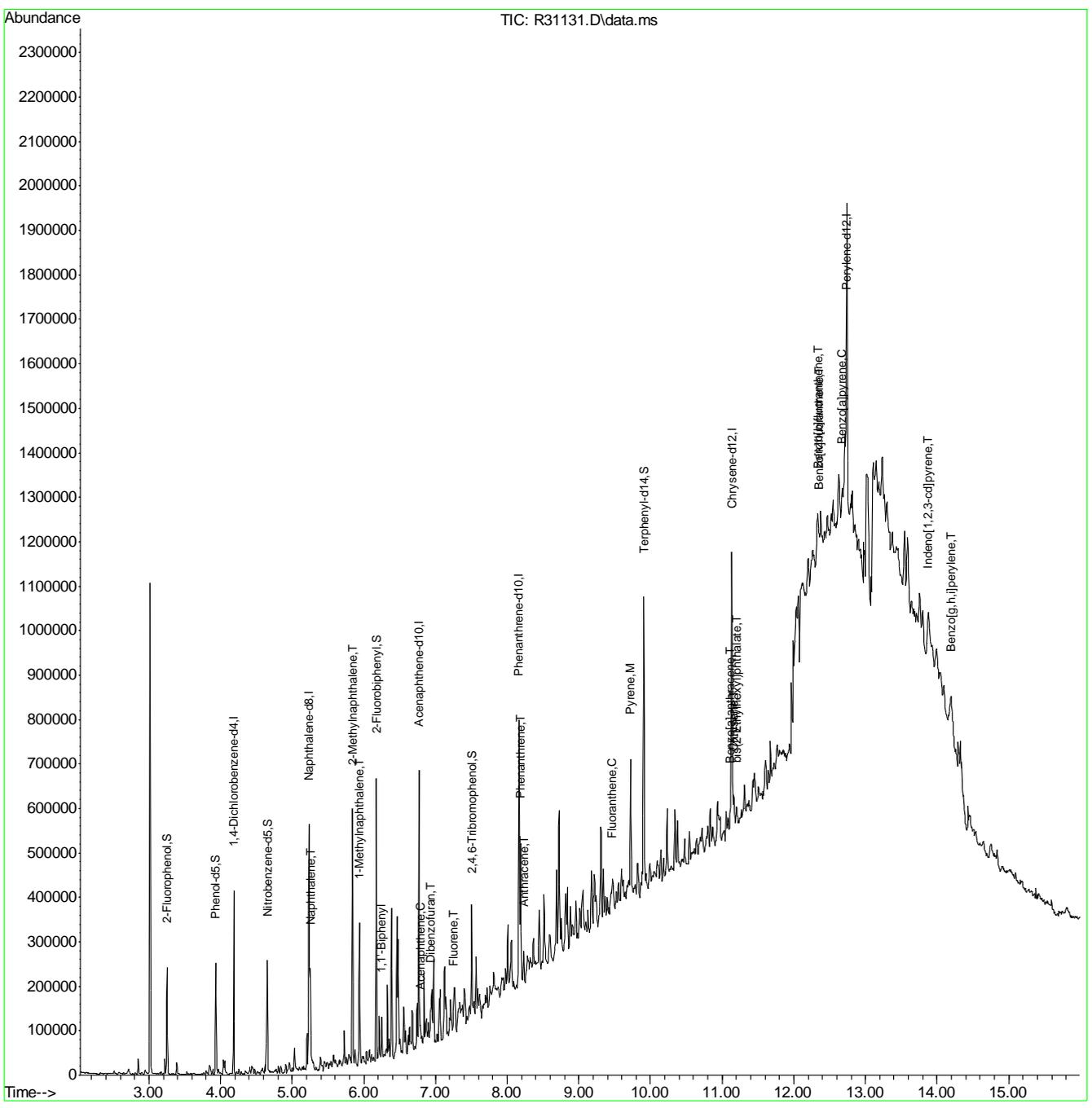
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)	
Internal Standards							
1) 1,4-Dichlorobenzene-d4	4.184	152	52071	40.00	ppm	-0.09	
24) Naphthalene-d8	5.237	136	204621	40.00	ppm	-0.09	
43) Acenaphthene-d10	6.766	164	114231	40.00	ppm	-0.10	
66) Phenanthrene-d10	8.166	188	221488	40.00	ppm	-0.10	
80) Chrysene-d12	11.136	240	249362	40.00	ppm	-0.10	
90) Perylene-d12	12.742	264	332272	40.00	ppm	-0.09	
System Monitoring Compounds							
7) 2-Fluorophenol	3.255	112	54416	35.88	ppm	-0.07	
Spiked Amount	100.000	Range	30 - 130	Recovery	=	35.88%	
9) Phenol-d5	3.931	99	71247	38.55	ppm	-0.07	
Spiked Amount	100.000	Range	30 - 130	Recovery	=	38.55%	
25) Nitrobenzene-d5	4.654	82	62374	38.09	ppm	-0.09	
Spiked Amount	50.000	Range	30 - 130	Recovery	=	76.18%	
48) 2-Fluorobiphenyl	6.172	172	153927	39.48	ppm	-0.09	
Spiked Amount	50.000	Range	30 - 130	Recovery	=	78.96%	
70) 2,4,6-Tribromophenol	7.507	330	26659	51.31	ppm	-0.09	
Spiked Amount	100.000	Range	30 - 130	Recovery	=	51.31%	
83) Terphenyl-d14	9.907	244	202257	39.57	ppm	-0.10	
Spiked Amount	50.000	Range	30 - 130	Recovery	=	79.14%	
Target Compounds							
34) Naphthalene	5.254	128	87277	16.88	ppm		100
39) 2-Methylnaphthalene	5.843	142	132616	37.42	ppm		98
40) 1-Methylnaphthalene	5.937	142	60115	17.57	ppm		95
53) Acenaphthene	6.795	153	5309m	1.64	ppm		
55) Dibenzofuran	6.937	168	10614m	2.29	ppm		
59) Fluorene	7.248	166	7571m	2.05	ppm		
65) 1,1'-Biphenyl	6.248	154	22099	5.48	ug/mL		96
74) Phenanthrene	8.190	178	124771	20.63	ppm		99
75) Anthracene	8.231	178	18701	3.05	ppm		88
78) Fluoranthene	9.466	202	27501	4.27	ppm		97
82) Pyrene	9.725	202	131178	18.62	ppm		93
87) Benzo[a]anthracene	11.113	228	25452	4.08	ppm		91
88) Chrysene	11.160	228	32217	4.95	ppm		96
89) bis(2-Ethylhexyl)phtha...	11.201	149	11266	5.44	ppm		89
92) Benzo[b]fluoranthene	12.336	252	21726m	2.32	ppm		
93) Benzo[k]fluoranthene	12.354	252	11152m	1.26	ppm		
94) Benzo[a]pyrene	12.677	252	28200	3.31	ppm		94
95) Indeno[1,2,3-cd]pyrene	13.877	276	21558	2.10	ppm		98
97) Benzo[g,h,i]perylene	14.195	276	47160	5.59	ppm		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

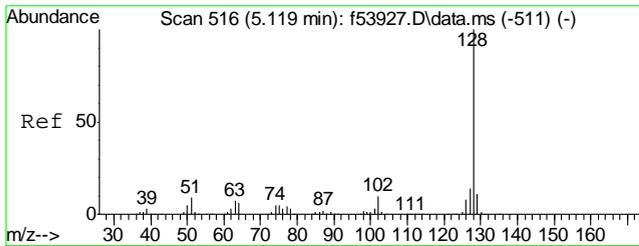
Quantitation Report (QT Reviewed)

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Data File : R31131.D
Acq On : 2 Jun 2013 3:05 pm
Operator : AkinA
Sample : JB37361-3
Misc : OP33425,MSr1132,20.04,,,1,1
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jun 12 11:50:05 2013
Quant Method : C:\msdchem\1\methods\R130521_8270+.m
Quant Title : SW-864 Method 8270
QLast Update : Tue May 28 18:15:12 2013
Response via : Initial Calibration

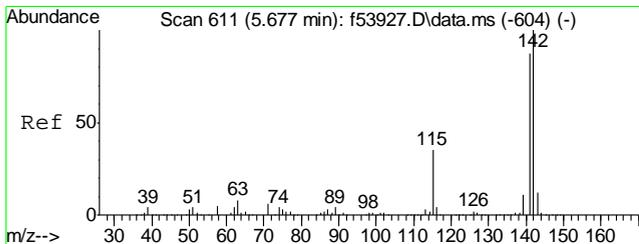
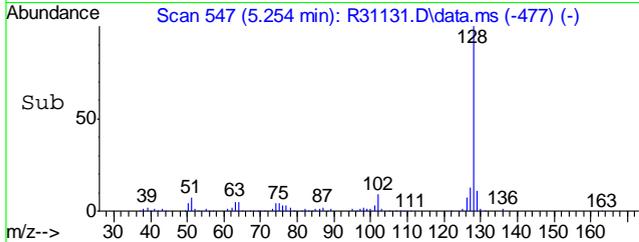
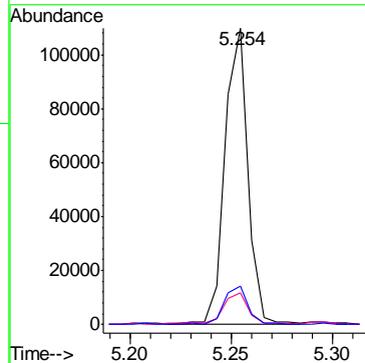
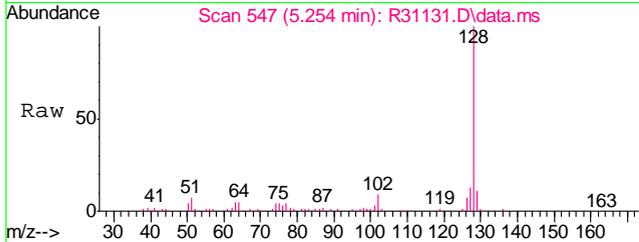


10.1.3 10



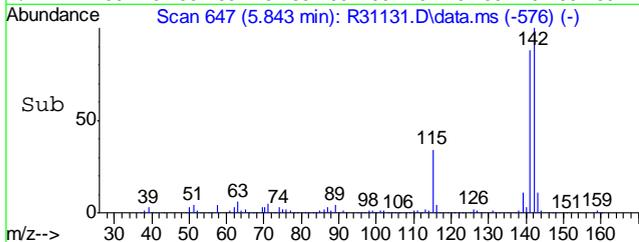
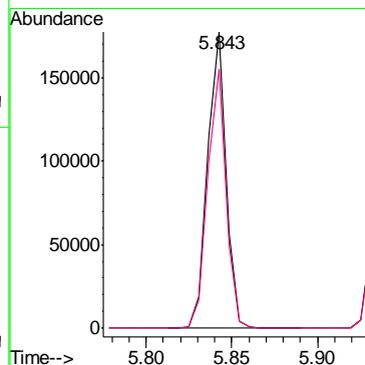
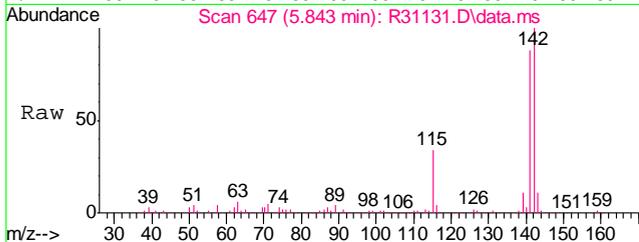
#34
 Naphthalene
 Concen: 16.88 ppm
 RT: 5.254 min Scan# 547
 Delta R.T. -0.091 min
 Lab File: R31131.D
 Acq: 2 Jun 2013 3:05 pm

Tgt Ion	Resp	Lower	Upper
128	100		
129	10.8	0.0	40.6
127	12.9	0.0	43.1

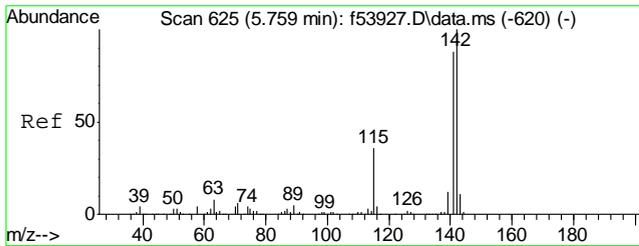


#39
 2-Methylnaphthalene
 Concen: 37.42 ppm
 RT: 5.843 min Scan# 647
 Delta R.T. -0.085 min
 Lab File: R31131.D
 Acq: 2 Jun 2013 3:05 pm

Tgt Ion	Resp	Lower	Upper
142	100		
141	87.6	56.0	116.0

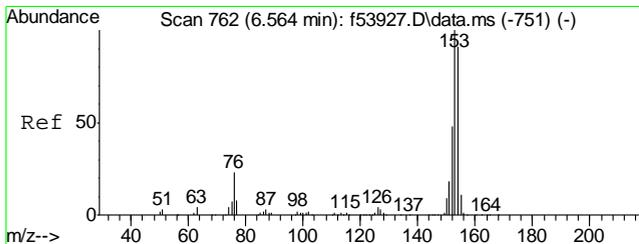
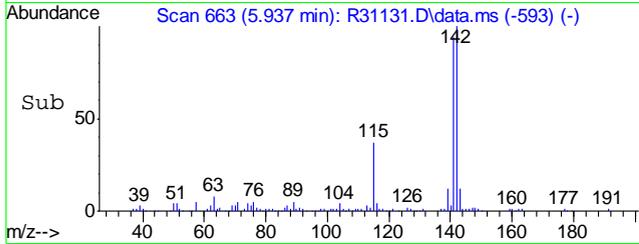
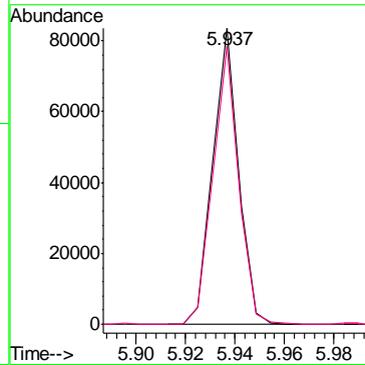
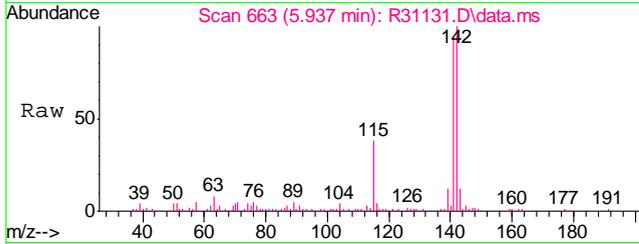


10.1.3
10



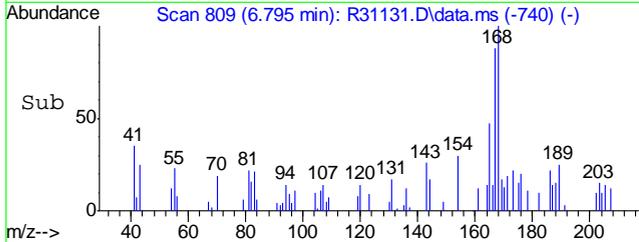
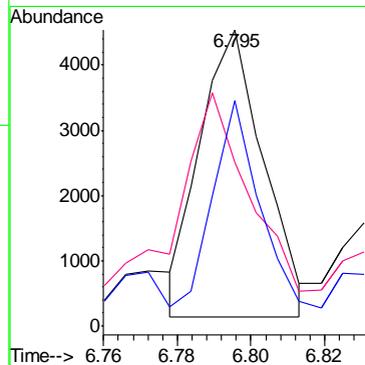
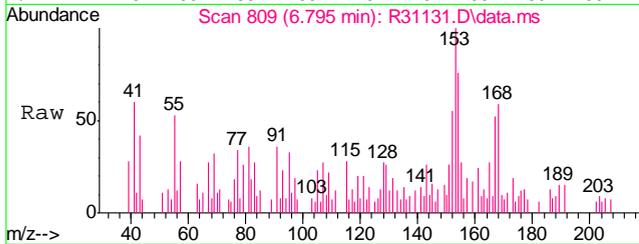
#40
 1-Methylnaphthalene
 Concen: 17.57 ppm
 RT: 5.937 min Scan# 663
 Delta R.T. -0.091 min
 Lab File: R31131.D
 Acq: 2 Jun 2013 3:05 pm

Tgt Ion:142 Resp: 60115
 Ion Ratio Lower Upper
 142 100
 141 93.9 68.8 108.8

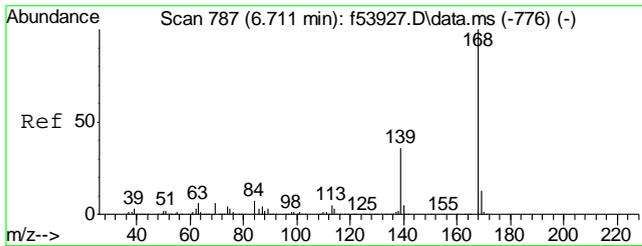


#53
 Acenaphthene
 Concen: 1.64 ppm m
 RT: 6.795 min Scan# 809
 Delta R.T. -0.097 min
 Lab File: R31131.D
 Acq: 2 Jun 2013 3:05 pm

Tgt Ion:153 Resp: 5309
 Ion Ratio Lower Upper
 153 100
 152 55.3 17.6 77.6
 154 76.0 62.0 122.0

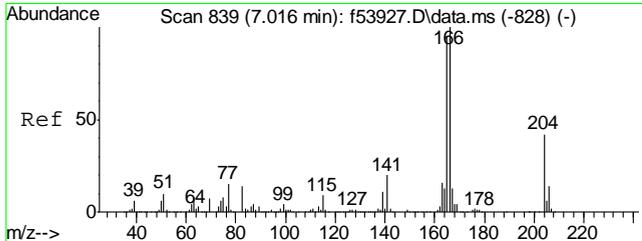
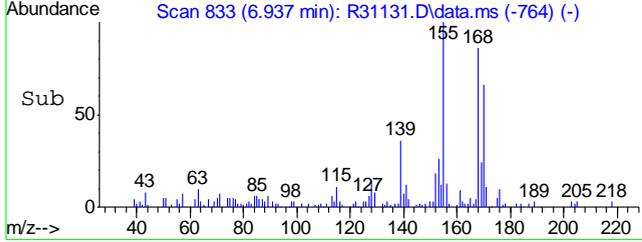
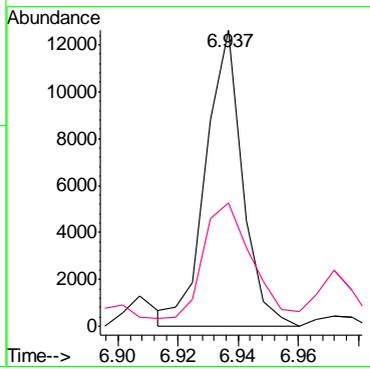
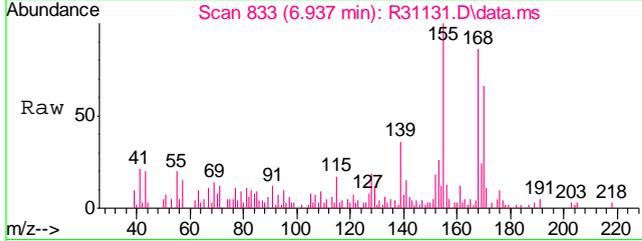


10.1.3
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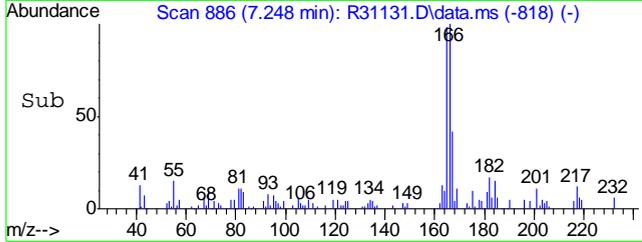
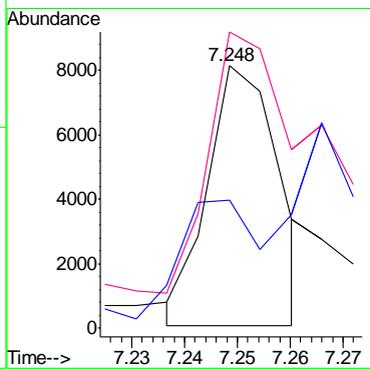
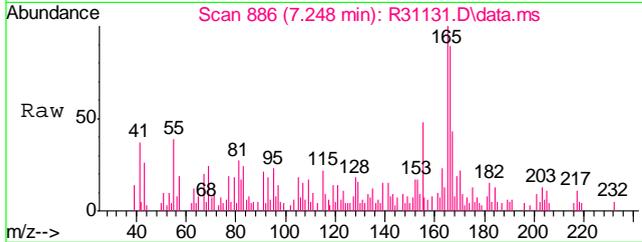
#55
 Dibenzofuran
 Concen: 2.29 ppm m
 RT: 6.937 min Scan# 833
 Delta R.T. -0.091 min
 Lab File: R31131.D
 Acq: 2 Jun 2013 3:05 pm

Tgt Ion	Resp	Lower	Upper
168	10614	100	
139	41.9	9.2	69.2

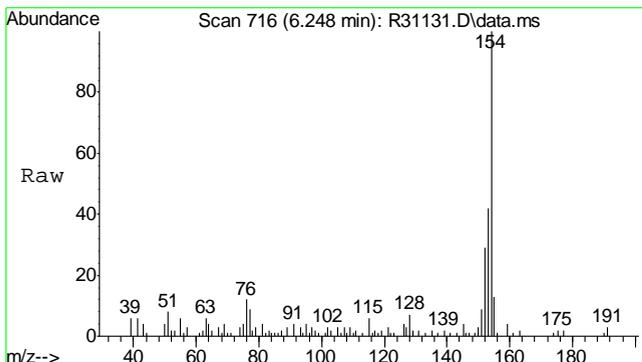


#59
 Fluorene
 Concen: 2.05 ppm m
 RT: 7.248 min Scan# 886
 Delta R.T. -0.103 min
 Lab File: R31131.D
 Acq: 2 Jun 2013 3:05 pm

Tgt Ion	Resp	Lower	Upper
166	7571	100	
165	112.9	66.3	126.3
167	48.8	0.0	43.2#

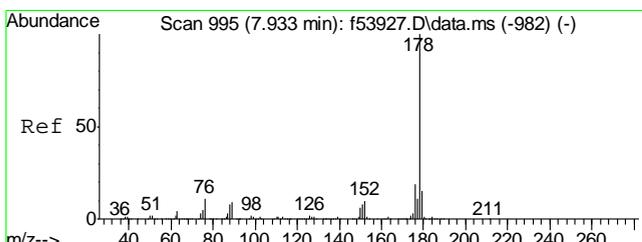
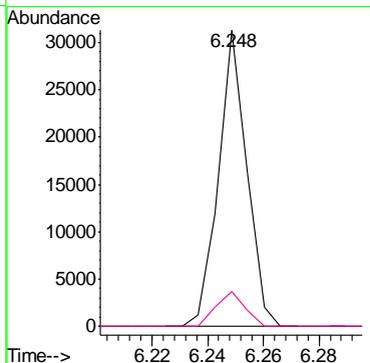
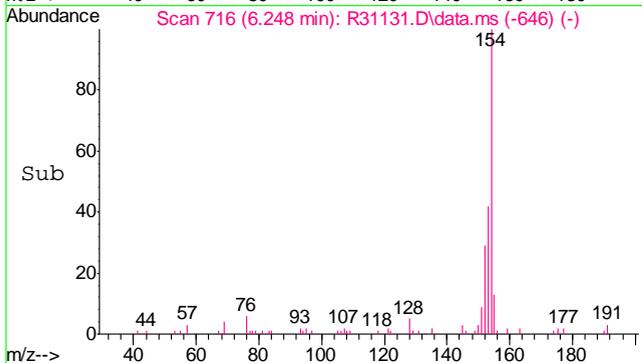


10.1.3 10



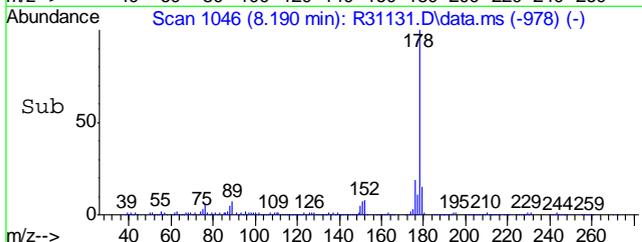
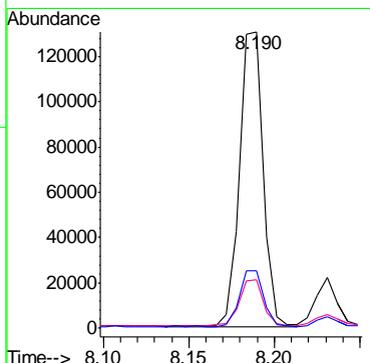
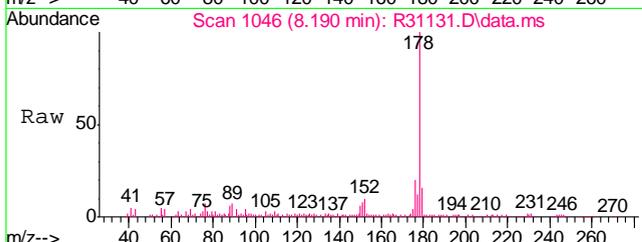
#65
 1,1'-Biphenyl
 Concen: 5.48 ug/mL
 RT: 6.248 min Scan# 716
 Delta R.T. -0.091 min
 Lab File: R31131.D
 Acq: 2 Jun 2013 3:05 pm

Tgt Ion:154	Resp:	22099
Ion Ratio	Lower	Upper
154	100	
76	11.9	10.9 16.3

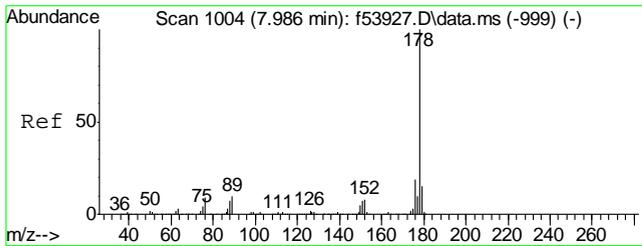


#74
 Phenanthrene
 Concen: 20.63 ppm
 RT: 8.190 min Scan# 1046
 Delta R.T. -0.103 min
 Lab File: R31131.D
 Acq: 2 Jun 2013 3:05 pm

Tgt Ion:178	Resp:	124771
Ion Ratio	Lower	Upper
178	100	
179	15.5	0.0 45.1
176	19.1	0.0 49.3

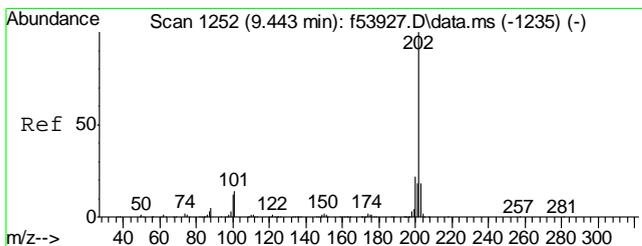
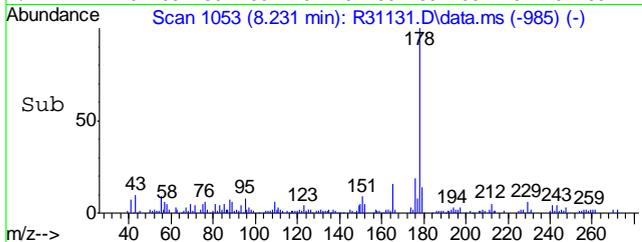
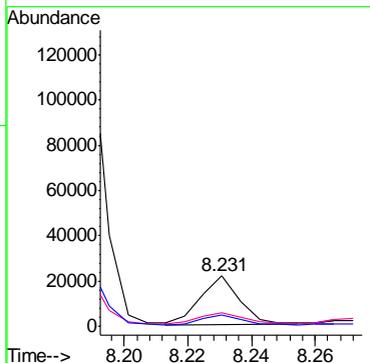
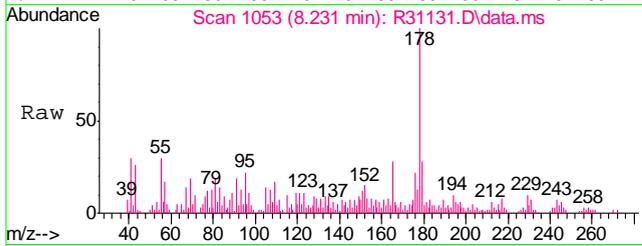


10.1.3 10



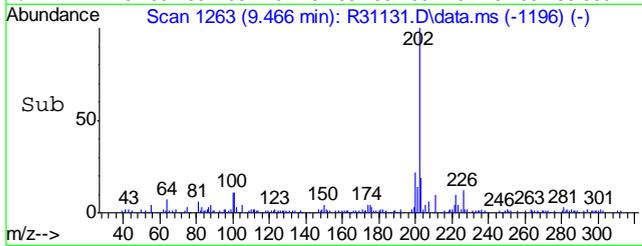
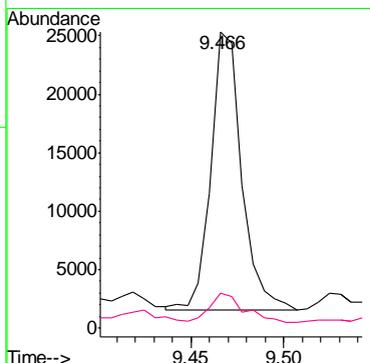
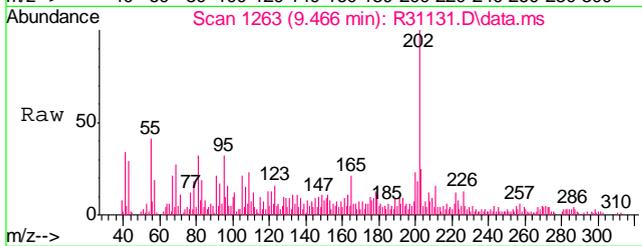
#75
 Anthracene
 Concen: 3.05 ppm
 RT: 8.231 min Scan# 1053
 Delta R.T. -0.103 min
 Lab File: R31131.D
 Acq: 2 Jun 2013 3:05 pm

Tgt Ion	Resp	Lower	Upper
178	18701	100	
179	24.6	0.0	45.3
176	19.8	0.0	48.5

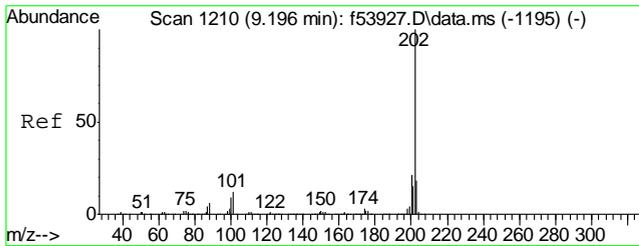


#78
 Fluoranthene
 Concen: 4.27 ppm
 RT: 9.466 min Scan# 1263
 Delta R.T. -0.109 min
 Lab File: R31131.D
 Acq: 2 Jun 2013 3:05 pm

Tgt Ion	Resp	Lower	Upper
202	27501	100	
101	13.2	0.0	42.1

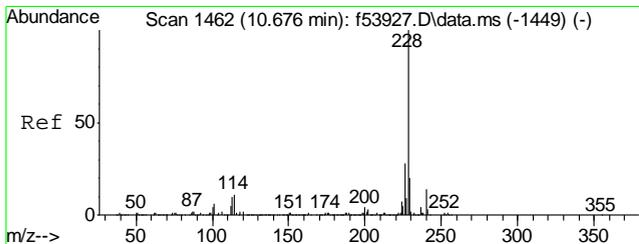
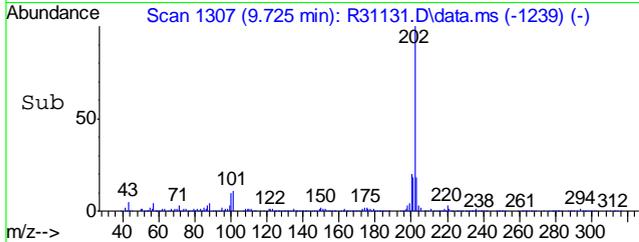
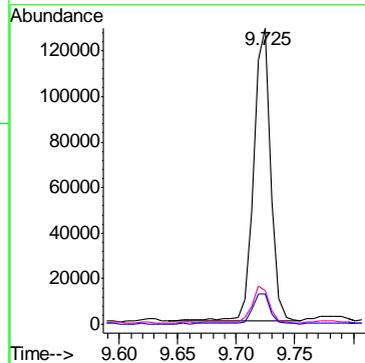
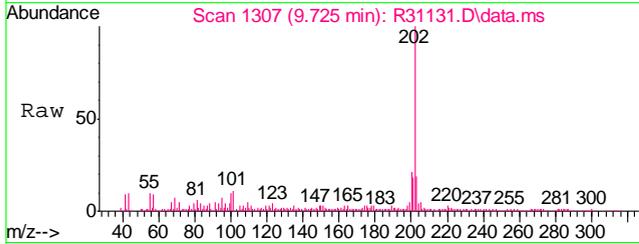


10.1.3
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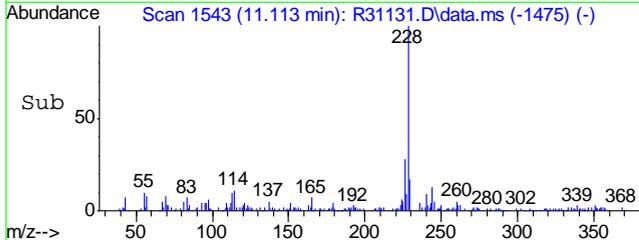
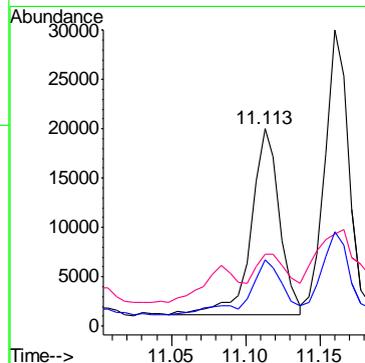
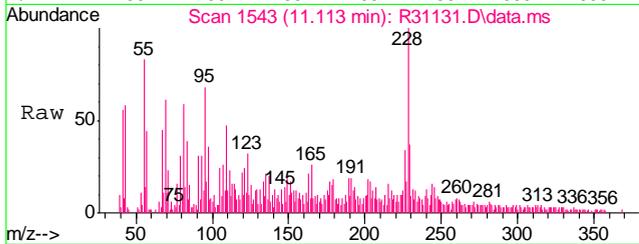
#82
 Pyrene
 Concen: 18.62 ppm
 RT: 9.725 min Scan# 1307
 Delta R.T. -0.103 min
 Lab File: R31131.D
 Acq: 2 Jun 2013 3:05 pm

Tgt Ion	Resp	Lower	Upper
202	131178		
101	11.1	0.0	44.8
100	10.3	0.0	41.9

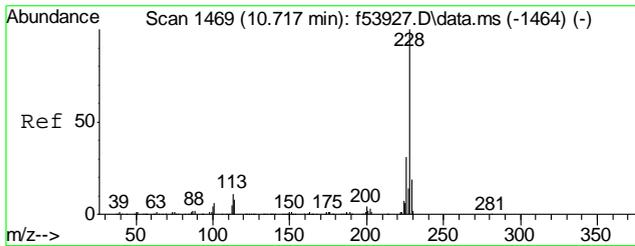


#87
 Benzo[a]anthracene
 Concen: 4.08 ppm
 RT: 11.113 min Scan# 1543
 Delta R.T. -0.103 min
 Lab File: R31131.D
 Acq: 2 Jun 2013 3:05 pm

Tgt Ion	Resp	Lower	Upper
228	25452		
229	26.0	0.0	49.6
226	29.6	0.0	56.8

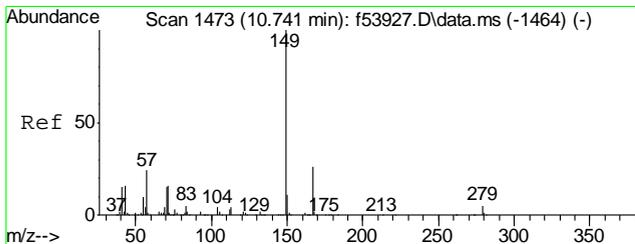
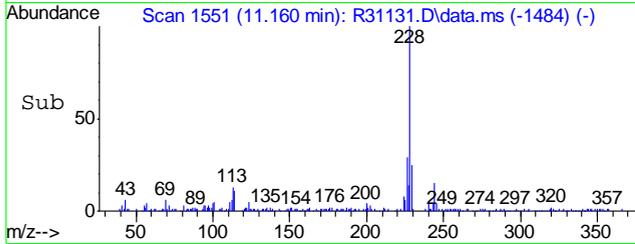
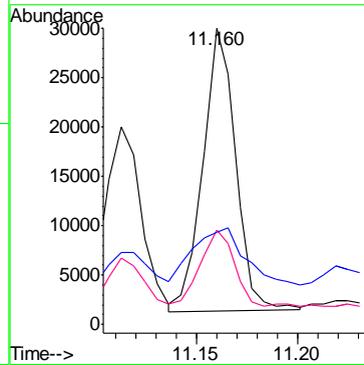
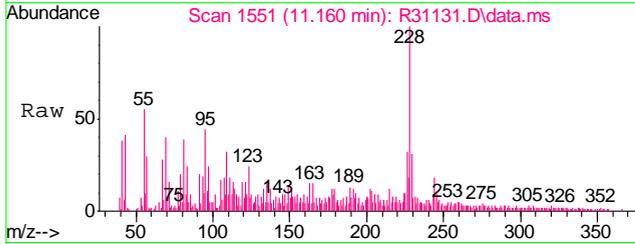


10.1.3
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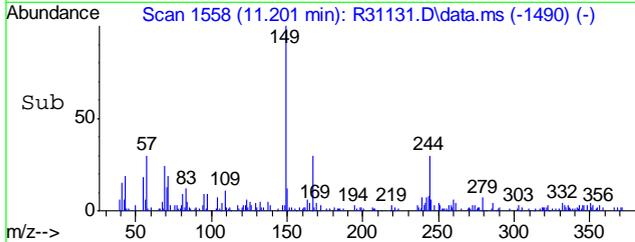
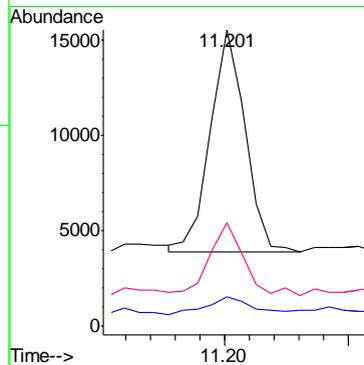
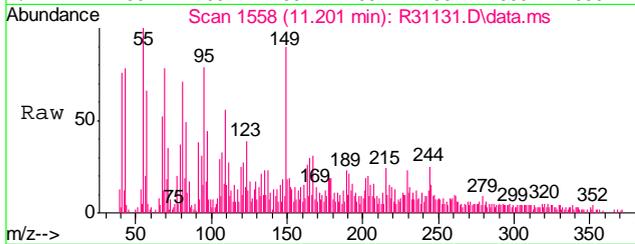
#88
 Chrysene
 Concen: 4.95 ppm
 RT: 11.160 min Scan# 1551
 Delta R.T. -0.109 min
 Lab File: R31131.D
 Acq: 2 Jun 2013 3:05 pm

Tgt Ion	Resp	Lower	Upper
228	32217		
226	27.2	0.0	59.8
229	18.8	0.0	49.7

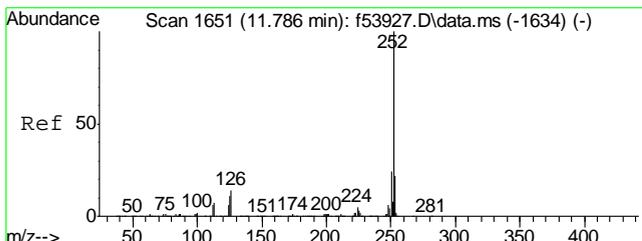


#89
 bis(2-Ethylhexyl)phthalate
 Concen: 5.44 ppm
 RT: 11.201 min Scan# 1558
 Delta R.T. -0.103 min
 Lab File: R31131.D
 Acq: 2 Jun 2013 3:05 pm

Tgt Ion	Resp	Lower	Upper
149	11266		
167	32.4	0.0	56.6
279	7.8	0.0	34.5

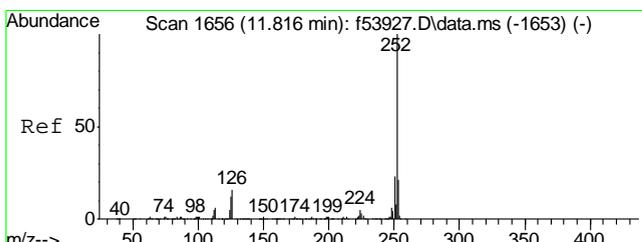
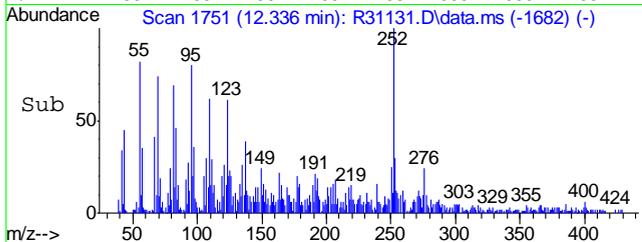
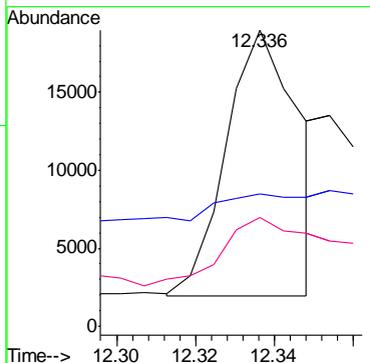
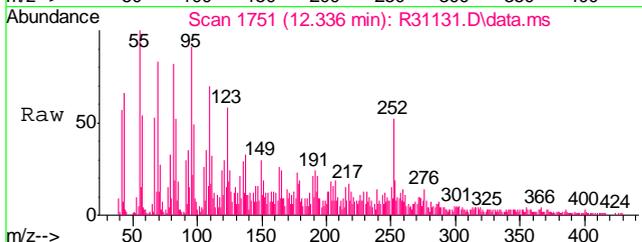


10.13
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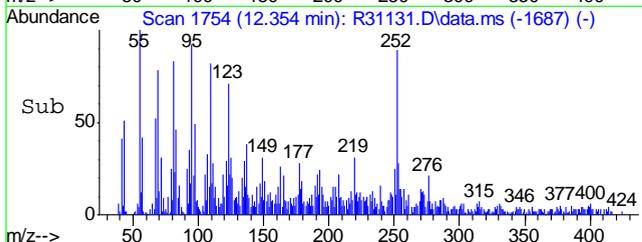
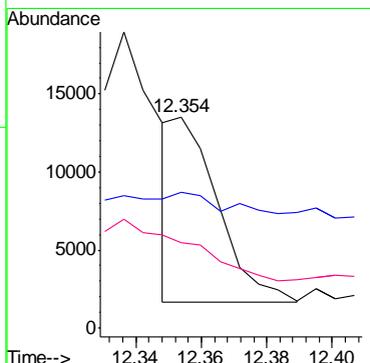
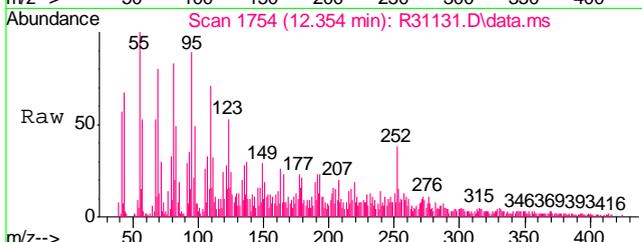
#92
 Benzo[b]fluoranthene
 Concen: 2.32 ppm m
 RT: 12.336 min Scan# 1751
 Delta R.T. -0.097 min
 Lab File: R31131.D
 Acq: 2 Jun 2013 3:05 pm

Tgt Ion	Resp	Lower	Upper
252	100		
253	36.9	0.0	51.7
125	44.9	0.0	41.8#

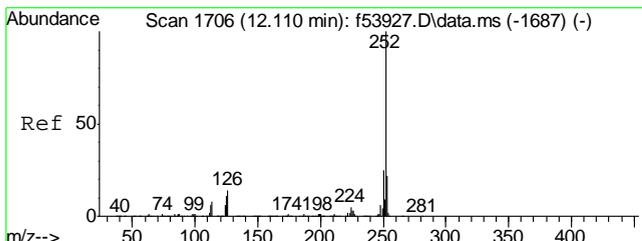


#93
 Benzo[k]fluoranthene
 Concen: 1.26 ppm m
 RT: 12.354 min Scan# 1754
 Delta R.T. -0.109 min
 Lab File: R31131.D
 Acq: 2 Jun 2013 3:05 pm

Tgt Ion	Resp	Lower	Upper
252	100		
253	40.6	0.0	51.6
125	64.4	0.0	40.3#

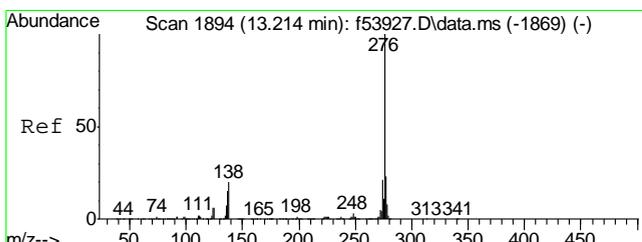
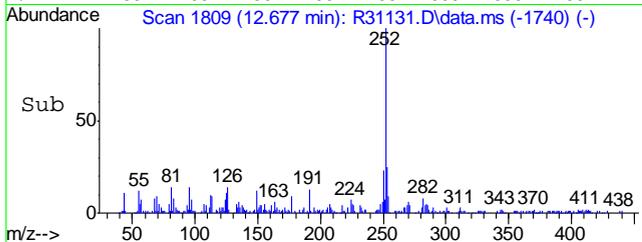
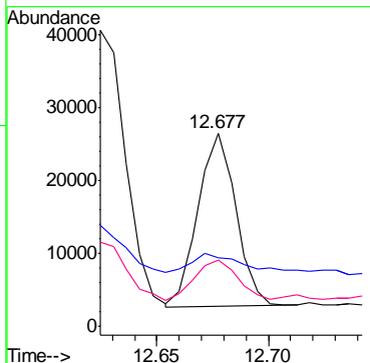
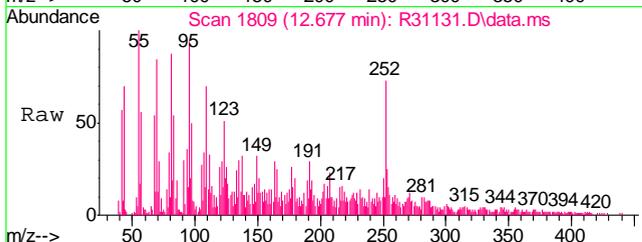


10.1.3
10



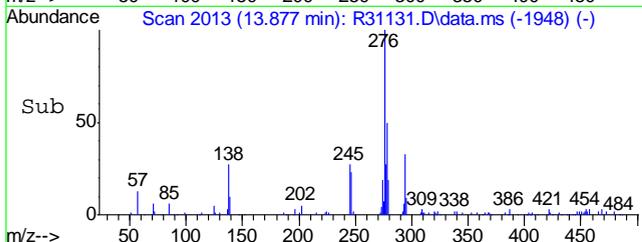
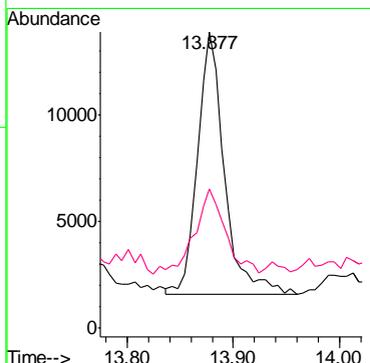
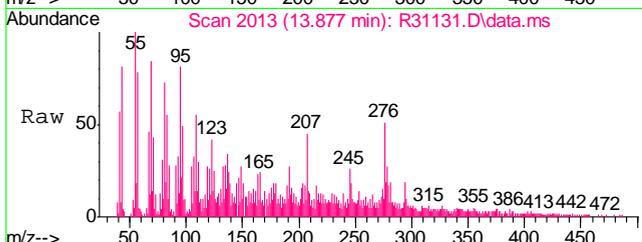
#94
 Benzo[a]pyrene
 Concen: 3.31 ppm
 RT: 12.677 min Scan# 1809
 Delta R.T. -0.097 min
 Lab File: R31131.D
 Acq: 2 Jun 2013 3:05 pm

Tgt Ion	Resp	Lower	Upper
252	100		
253	23.4	0.0	51.5
125	8.4	0.0	41.6

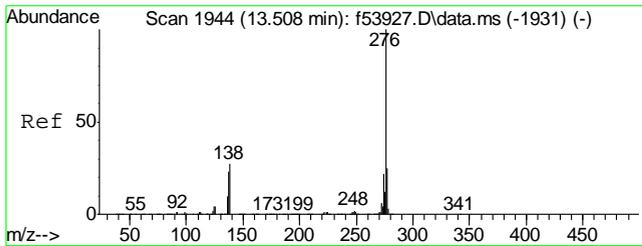


#95
 Indeno[1,2,3-cd]pyrene
 Concen: 2.10 ppm
 RT: 13.877 min Scan# 2013
 Delta R.T. -0.120 min
 Lab File: R31131.D
 Acq: 2 Jun 2013 3:05 pm

Tgt Ion	Resp	Lower	Upper
276	100		
138	31.1	2.0	62.0

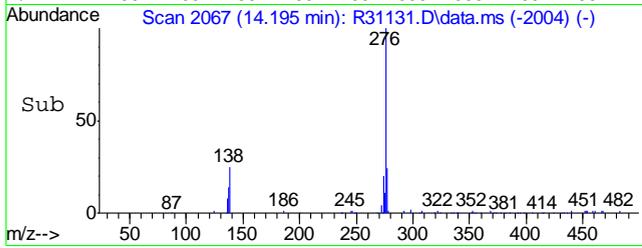
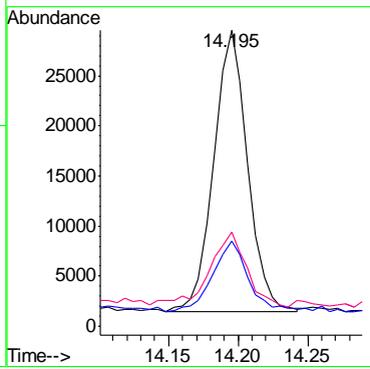
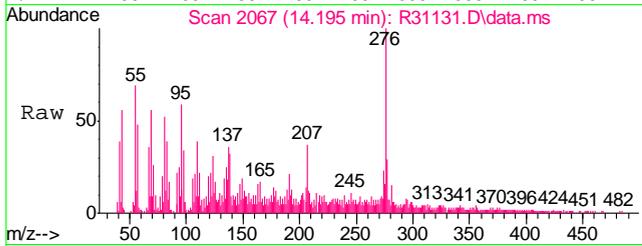


10.1.3
 10



#97
 Benzo[g,h,i]perylene
 Concen: 5.59 ppm
 RT: 14.195 min Scan# 2067
 Delta R.T. -0.132 min
 Lab File: R31131.D
 Acq: 2 Jun 2013 3:05 pm

Tgt Ion	Resp	Lower	Upper
276	47160		
276	100		
138	24.3	0.0	54.4
277	25.2	0.0	53.5



10.1.3
10

Quantitation Report (QT Reviewed)

Doug Yargeau
06/14/13 11:23

Data Path : C:\msdchem\1\data\R130602\
 Data File : R31132.D
 Acq On : 2 Jun 2013 3:28 pm
 Operator : AkinA
 Sample : JB37361-4
 Misc : OP33425,MSr1132,20.24,,,1,1
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jun 12 11:52:07 2013
 Quant Method : C:\msdchem\1\methods\R130521_8270+.m
 Quant Title : SW-864 Method 8270
 QLast Update : Tue May 28 18:15:12 2013
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)	
Internal Standards							
1) 1,4-Dichlorobenzene-d4	4.190	152	55369	40.00	ppm	-0.08	
24) Naphthalene-d8	5.249	136	226690	40.00	ppm	-0.08	
43) Acenaphthene-d10	6.790	164	174974	40.00	ppm	-0.07	
66) Phenanthrene-d10	8.195	188	285779	40.00	ppm	-0.07	
80) Chrysene-d12	11.148	240	243018	40.00	ppm	-0.09	
90) Perylene-d12	12.736	264	231862	40.00	ppm	-0.09	
System Monitoring Compounds							
7) 2-Fluorophenol	3.255	112	53564	33.22	ppm	-0.07	
Spiked Amount	100.000	Range	30 - 130	Recovery	=	33.22%	
9) Phenol-d5	3.937	99	67648	34.42	ppm	-0.06	
Spiked Amount	100.000	Range	30 - 130	Recovery	=	34.42%	
25) Nitrobenzene-d5	4.660	82	64129	35.35	ppm	-0.08	
Spiked Amount	50.000	Range	30 - 130	Recovery	=	70.70%	
48) 2-Fluorobiphenyl	6.184	172	182018	30.48	ppm	-0.08	
Spiked Amount	50.000	Range	30 - 130	Recovery	=	60.96%	
70) 2,4,6-Tribromophenol	7.531	330	36907	55.06	ppm	-0.07	
Spiked Amount	100.000	Range	30 - 130	Recovery	=	55.06%	
83) Terphenyl-d14	9.925	244	278637	55.94	ppm	-0.09	
Spiked Amount	50.000	Range	30 - 130	Recovery	=	111.88%	
Target Compounds							
34) Naphthalene	5.260	128	167066m	29.16	ppm		Qvalue
39) 2-Methylnaphthalene	5.860	142	589342	150.11	ppm		97
40) 1-Methylnaphthalene	5.954	142	530742	140.01	ppm		98
53) Acenaphthene	6.819	153	101586m	20.49	ppm		
55) Dibenzofuran	6.960	168	120944m	17.06	ppm		
59) Fluorene	7.278	166	237583	42.04	ppm		95
74) Phenanthrene	8.219	178	669940m	85.86	ppm		
75) Anthracene	8.260	178	174203m	22.05	ppm		
78) Fluoranthene	9.495	202	62370	7.51	ppm		93
82) Pyrene	9.748	202	318967	46.45	ppm		99
87) Benzo[a]anthracene	11.125	228	25579	4.21	ppm		86
88) Chrysene	11.172	228	29469	4.65	ppm		96
92) Benzo[b]fluoranthene	12.336	252	6730m	1.03	ppm		
93) Benzo[k]fluoranthene	12.354	252	2809m	0.46	ppm		
94) Benzo[a]pyrene	12.672	252	10274	1.73	ppm		88
97) Benzo[g,h,i]perylene	14.171	276	9391	1.59	ppm		95

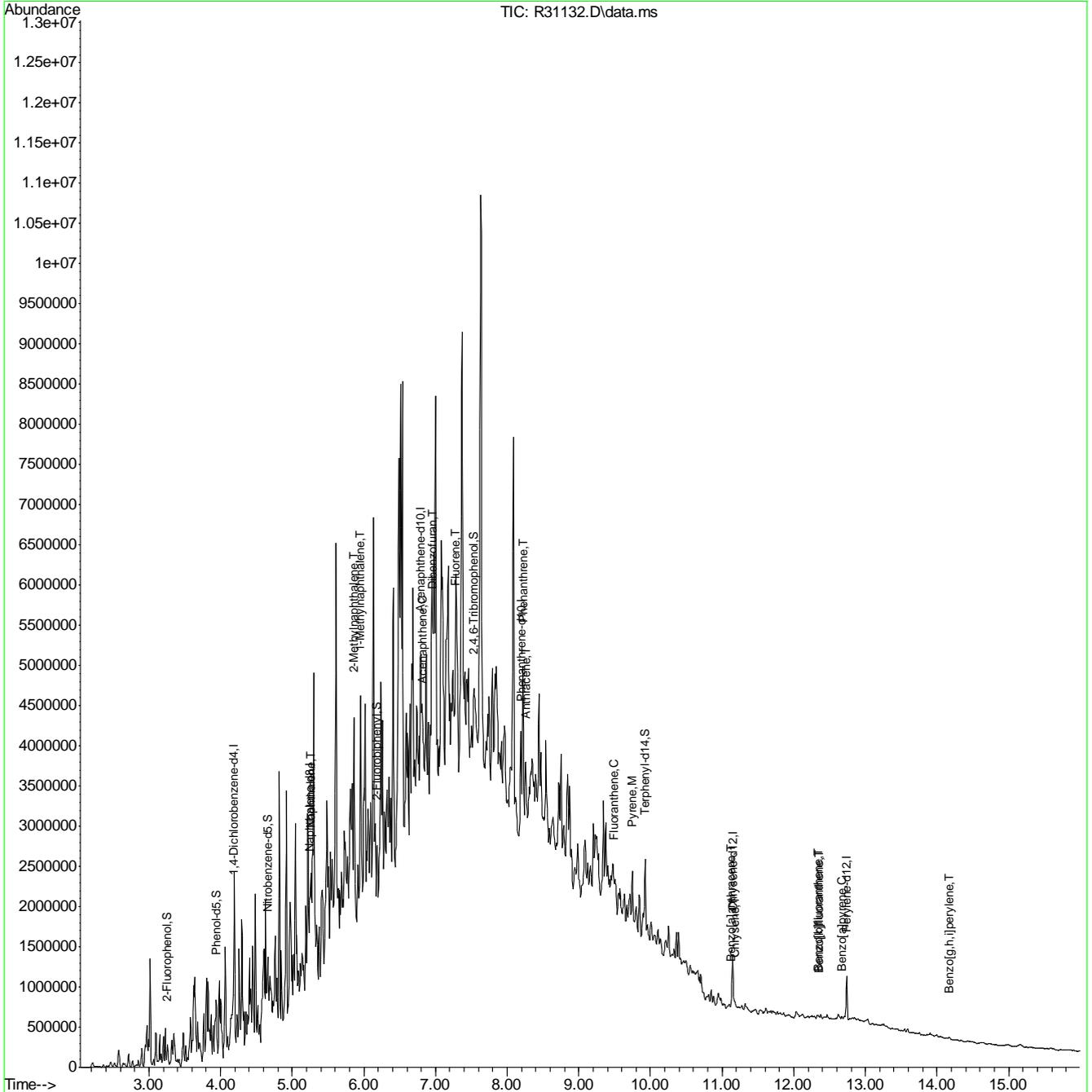
(#) = qualifier out of range (m) = manual integration (+) = signals summed

10.1.4
10

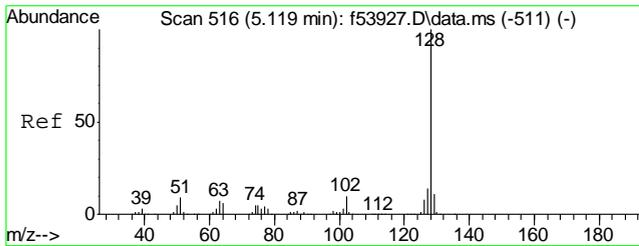
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\R130602\
Data File : R31132.D
Acq On : 2 Jun 2013 3:28 pm
Operator : AkinA
Sample : JB37361-4
Misc : OP33425,MSr1132,20.24,,,1,1
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jun 12 11:52:07 2013
Quant Method : C:\msdchem\1\methods\R130521_8270+.m
Quant Title : SW-864 Method 8270
QLast Update : Tue May 28 18:15:12 2013
Response via : Initial Calibration

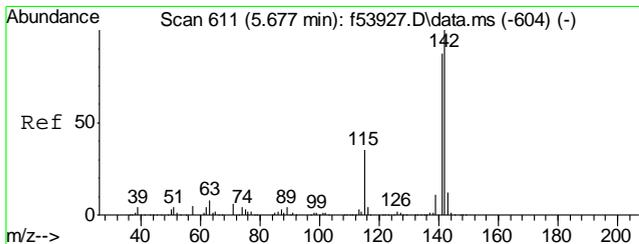
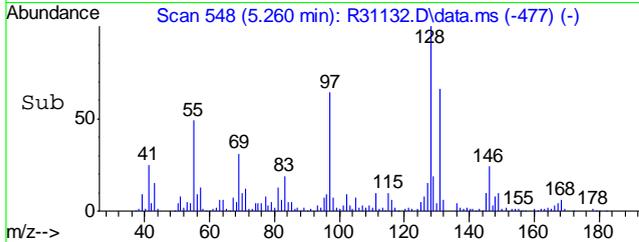
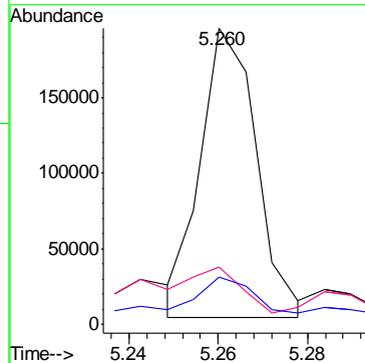
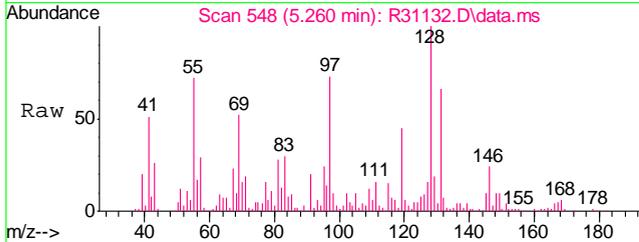


10.14 10



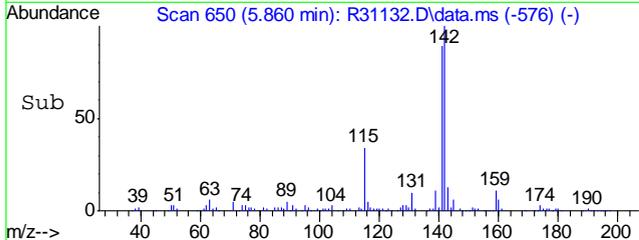
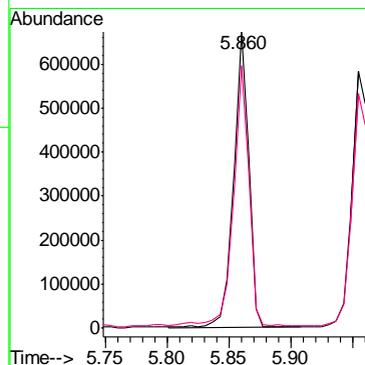
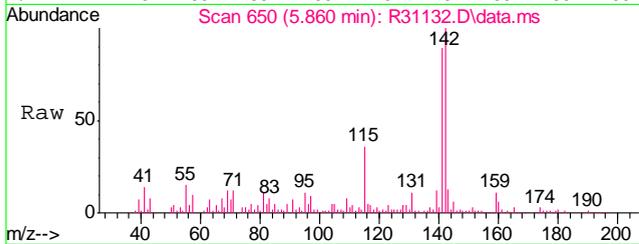
#34
 Naphthalene
 Concen: 29.16 ppm m
 RT: 5.260 min Scan# 548
 Delta R.T. -0.085 min
 Lab File: R31132.D
 Acq: 2 Jun 2013 3:28 pm

Tgt Ion	Resp	Lower	Upper
128	167066		
128	100		
129	19.5	0.0	40.6
127	15.9	0.0	43.1

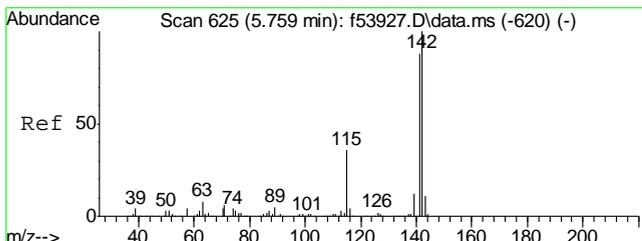


#39
 2-Methylnaphthalene
 Concen: 150.11 ppm
 RT: 5.860 min Scan# 650
 Delta R.T. -0.067 min
 Lab File: R31132.D
 Acq: 2 Jun 2013 3:28 pm

Tgt Ion	Resp	Lower	Upper
142	589342		
142	100		
141	88.3	56.0	116.0

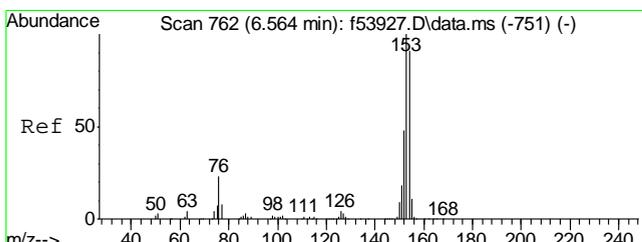
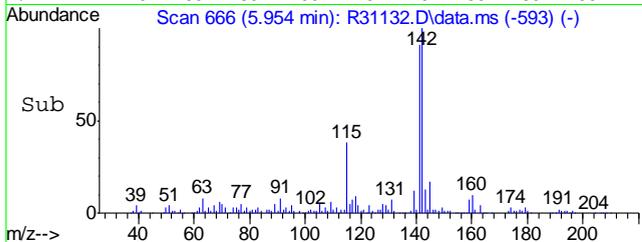
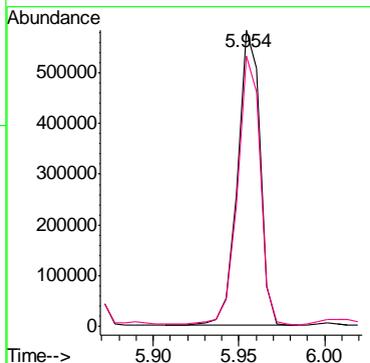
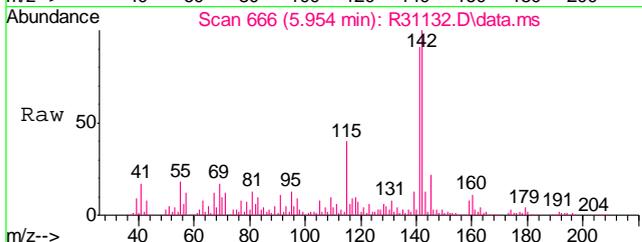


10.14 10



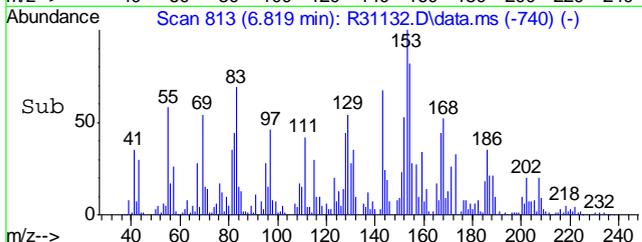
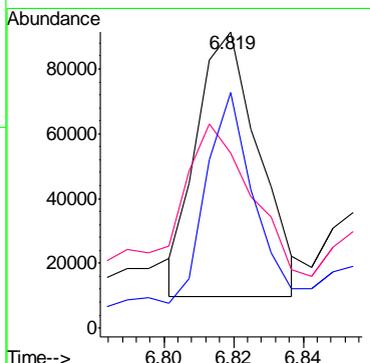
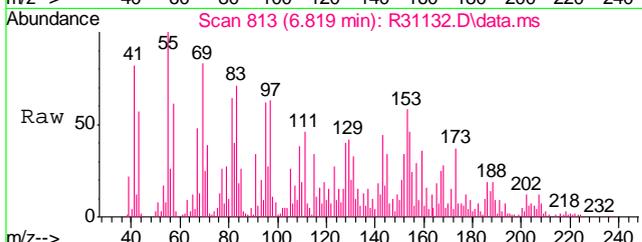
#40
 1-Methylnaphthalene
 Concen: 140.01 ppm
 RT: 5.954 min Scan# 666
 Delta R.T. -0.073 min
 Lab File: R31132.D
 Acq: 2 Jun 2013 3:28 pm

Tgt Ion:142 Resp: 530742
 Ion Ratio Lower Upper
 142 100
 141 90.9 68.8 108.8

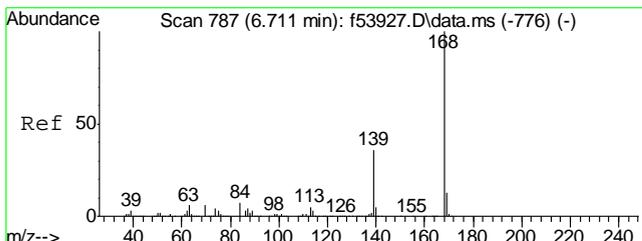


#53
 Acenaphthene
 Concen: 20.49 ppm m
 RT: 6.819 min Scan# 813
 Delta R.T. -0.073 min
 Lab File: R31132.D
 Acq: 2 Jun 2013 3:28 pm

Tgt Ion:153 Resp: 101586
 Ion Ratio Lower Upper
 153 100
 152 59.2 17.6 77.6
 154 79.5 62.0 122.0

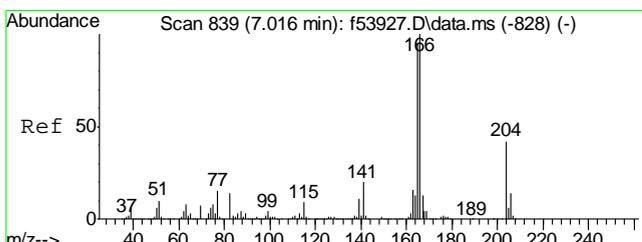
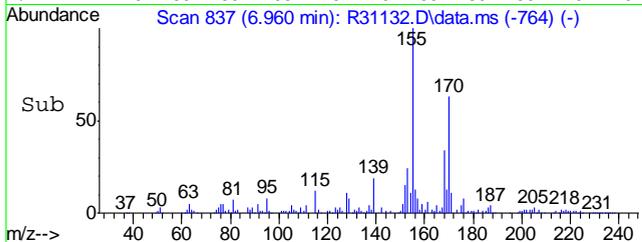
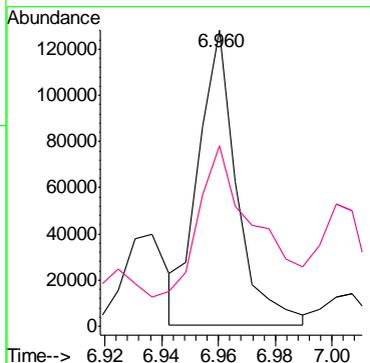
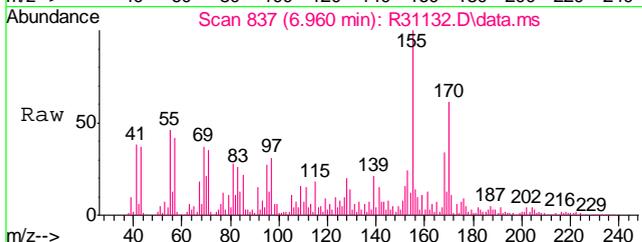


10.14 10



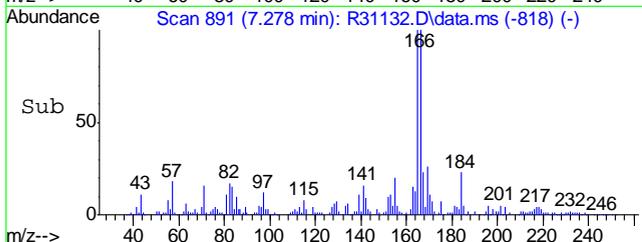
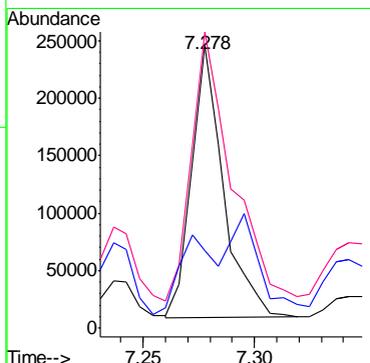
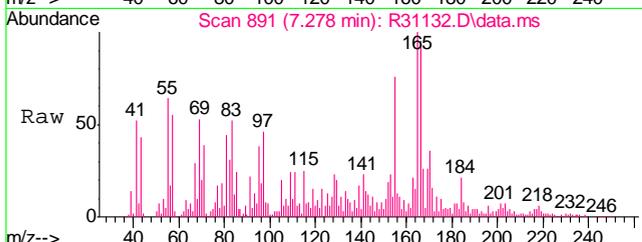
#55
 Dibenzofuran
 Concen: 17.06 ppm m
 RT: 6.960 min Scan# 837
 Delta R.T. -0.068 min
 Lab File: R31132.D
 Acq: 2 Jun 2013 3:28 pm

Tgt Ion:	168	Resp:	120944
Ion Ratio	Lower	Upper	
168	100		
139	61.0	9.2	69.2

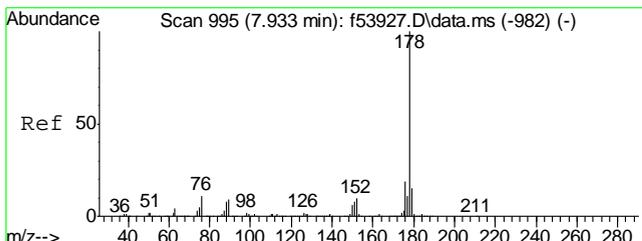


#59
 Fluorene
 Concen: 42.04 ppm
 RT: 7.278 min Scan# 891
 Delta R.T. -0.073 min
 Lab File: R31132.D
 Acq: 2 Jun 2013 3:28 pm

Tgt Ion:	166	Resp:	237583
Ion Ratio	Lower	Upper	
166	100		
165	99.0	66.3	126.3
167	21.1	0.0	43.2

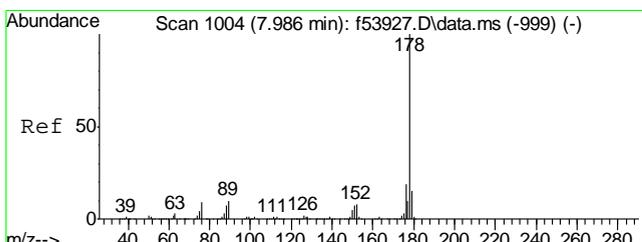
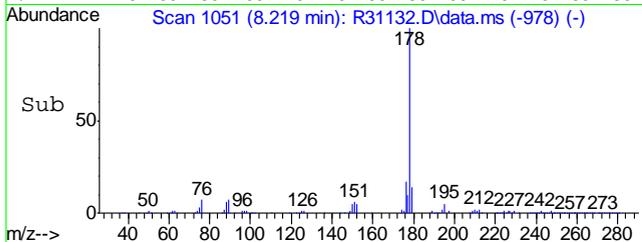
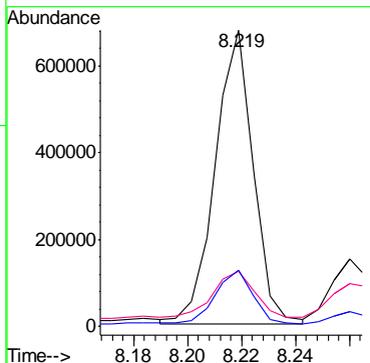
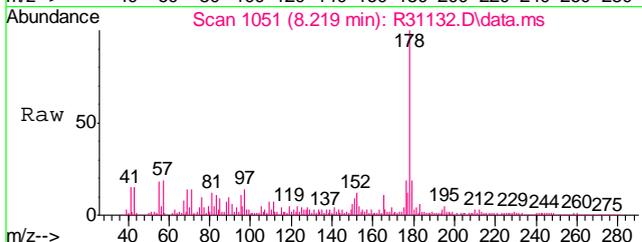


10.1.4
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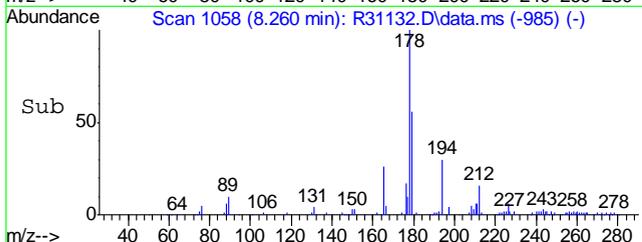
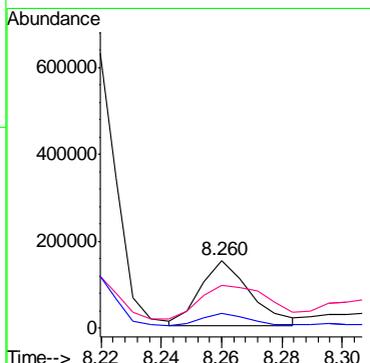
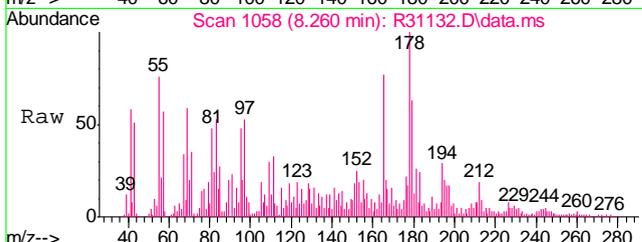
#74
 Phenanthrene
 Concen: 85.86 ppm m
 RT: 8.219 min Scan# 1051
 Delta R.T. -0.073 min
 Lab File: R31132.D
 Acq: 2 Jun 2013 3:28 pm

Tgt Ion	Resp	Lower	Upper
178	669940		
179	18.6	0.0	45.1
176	18.9	0.0	49.3

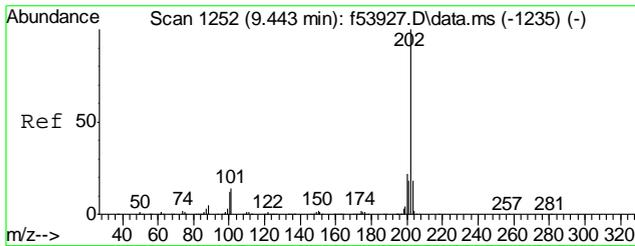


#75
 Anthracene
 Concen: 22.05 ppm m
 RT: 8.260 min Scan# 1058
 Delta R.T. -0.073 min
 Lab File: R31132.D
 Acq: 2 Jun 2013 3:28 pm

Tgt Ion	Resp	Lower	Upper
178	174203		
179	62.8	0.0	45.3#
176	21.7	0.0	48.5

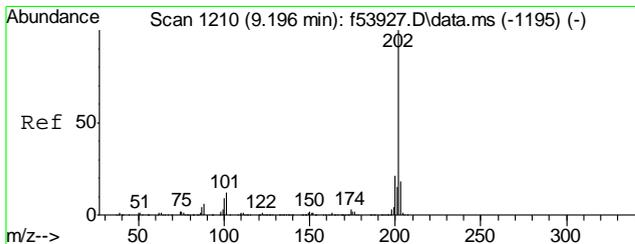
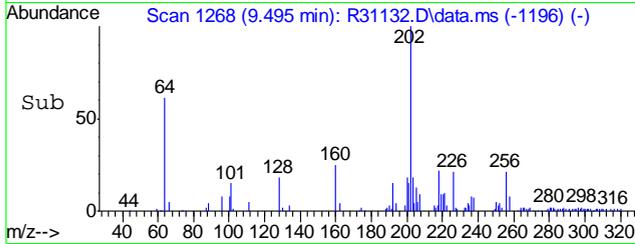
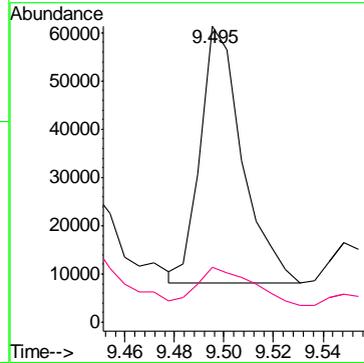
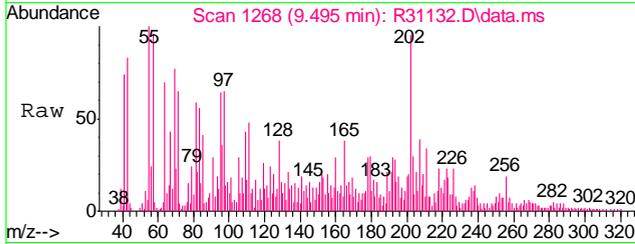


10.1.4
 10



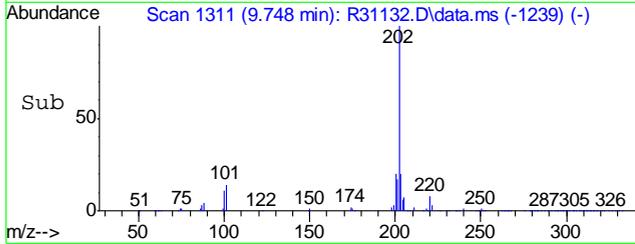
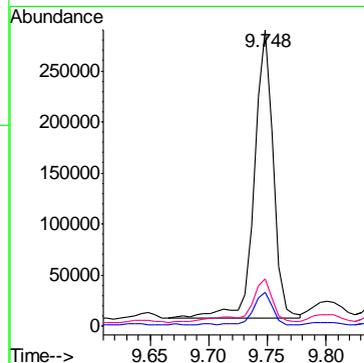
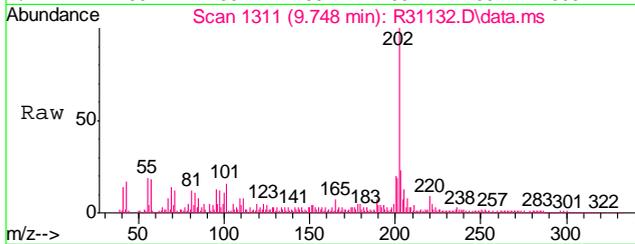
#78
 Fluoranthene
 Concen: 7.51 ppm
 RT: 9.495 min Scan# 1268
 Delta R.T. -0.079 min
 Lab File: R31132.D
 Acq: 2 Jun 2013 3:28 pm

Tgt Ion	Resp	Lower	Upper
202	62370	100	
101	14.9	0.0	42.1

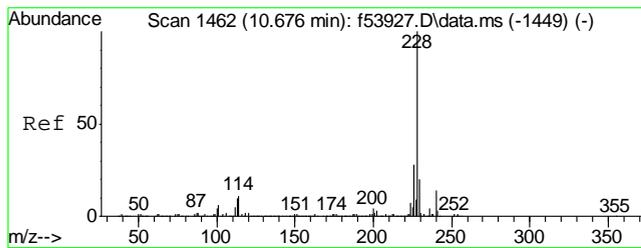


#82
 Pyrene
 Concen: 46.45 ppm
 RT: 9.748 min Scan# 1311
 Delta R.T. -0.079 min
 Lab File: R31132.D
 Acq: 2 Jun 2013 3:28 pm

Tgt Ion	Resp	Lower	Upper
202	318967	100	
101	15.1	0.0	44.8
100	11.1	0.0	41.9

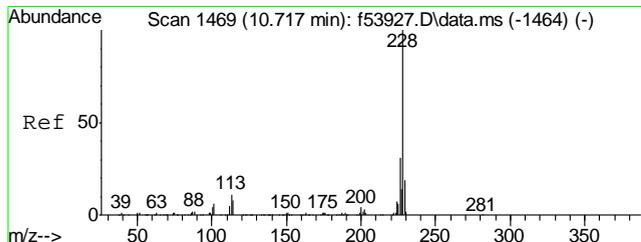
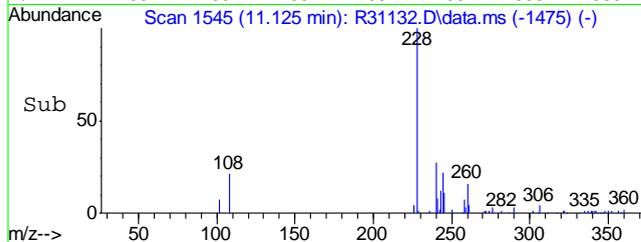
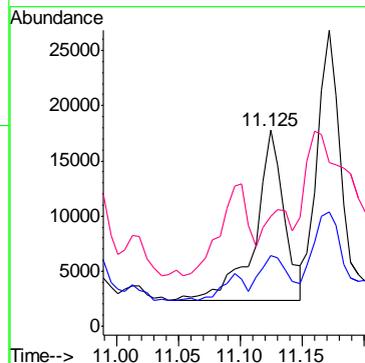
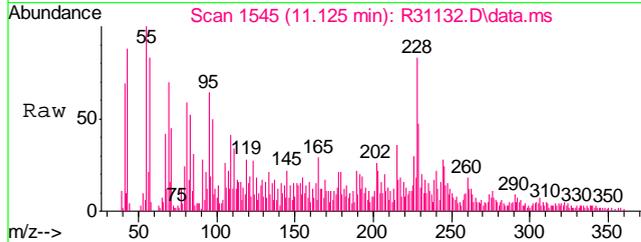


10.1.4
 10



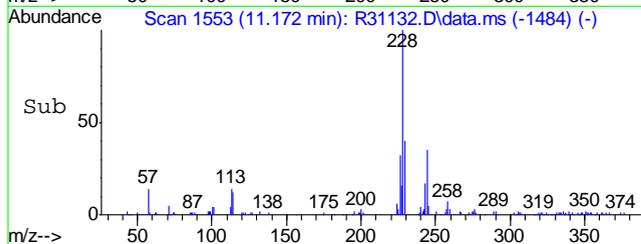
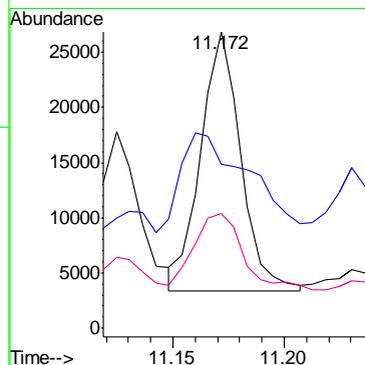
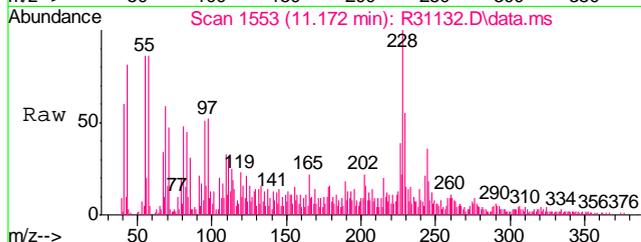
#87
 Benzo[a]anthracene
 Concen: 4.21 ppm
 RT: 11.125 min Scan# 1545
 Delta R.T. -0.091 min
 Lab File: R31132.D
 Acq: 2 Jun 2013 3:28 pm

Tgt Ion	Resp	Lower	Upper
228	25579	100	
229	34.0	0.0	49.6
226	26.0	0.0	56.8

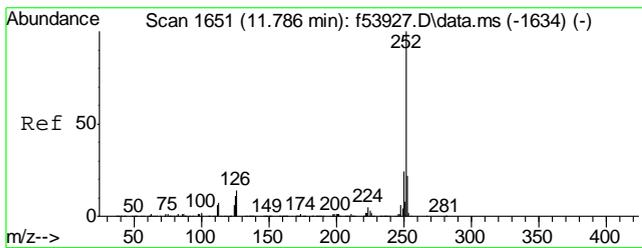


#88
 Chrysene
 Concen: 4.65 ppm
 RT: 11.172 min Scan# 1553
 Delta R.T. -0.097 min
 Lab File: R31132.D
 Acq: 2 Jun 2013 3:28 pm

Tgt Ion	Resp	Lower	Upper
228	29469	100	
226	28.7	0.0	59.8
229	23.3	0.0	49.7

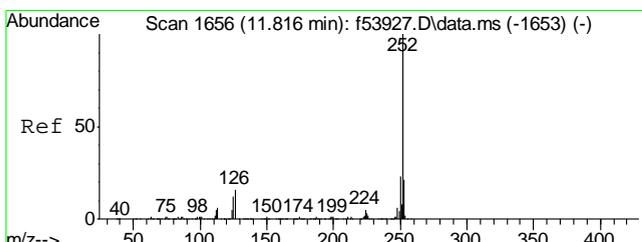
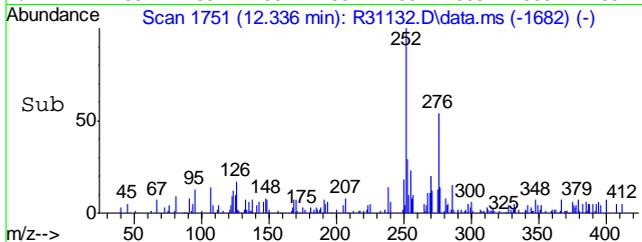
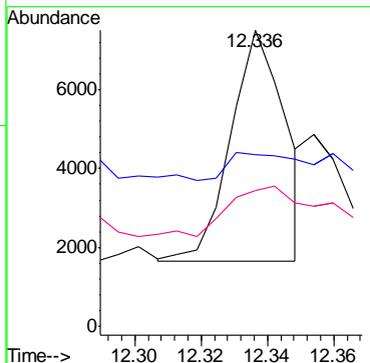
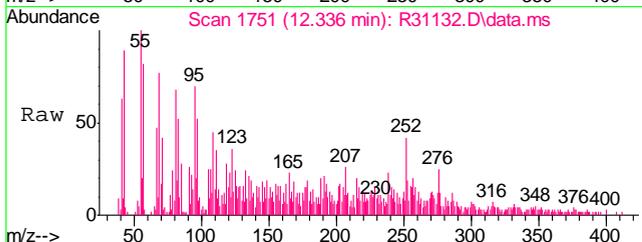


10.14
10



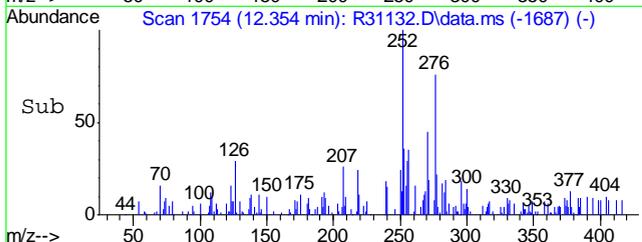
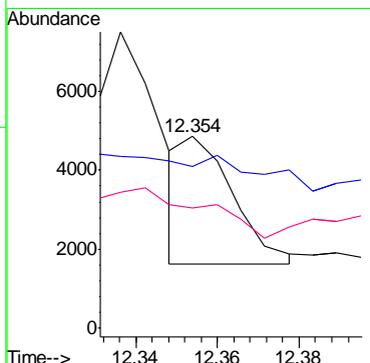
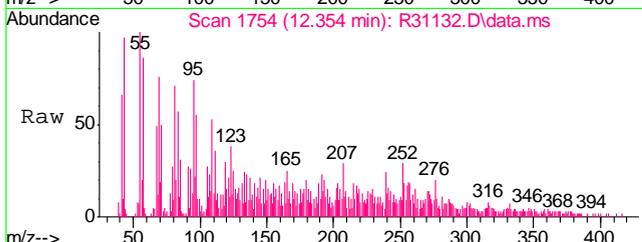
#92
 Benzo[b]fluoranthene
 Concen: 1.03 ppm m
 RT: 12.336 min Scan# 1751
 Delta R.T. -0.097 min
 Lab File: R31132.D
 Acq: 2 Jun 2013 3:28 pm

Tgt Ion	Resp	Lower	Upper
252	6730		
253	46.0	0.0	51.7
125	57.8	0.0	41.8#

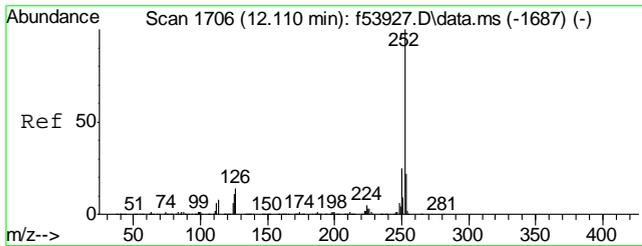


#93
 Benzo[k]fluoranthene
 Concen: 0.46 ppm m
 RT: 12.354 min Scan# 1754
 Delta R.T. -0.109 min
 Lab File: R31132.D
 Acq: 2 Jun 2013 3:28 pm

Tgt Ion	Resp	Lower	Upper
252	2809		
253	62.9	0.0	51.6#
125	84.5	0.0	40.3#

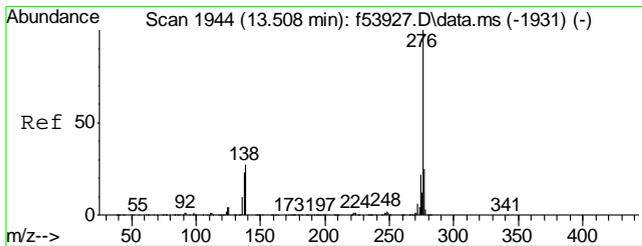
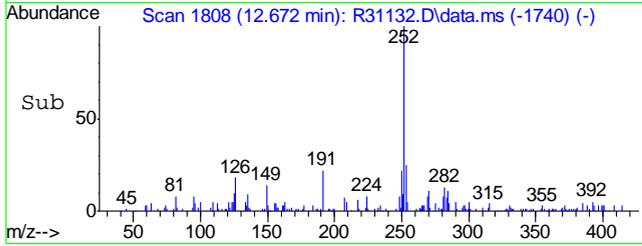
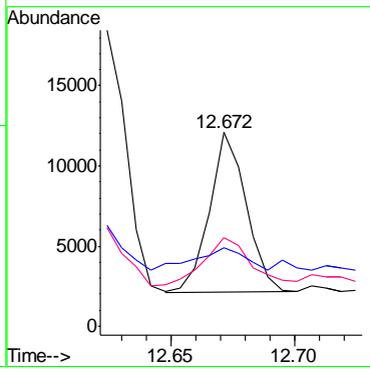
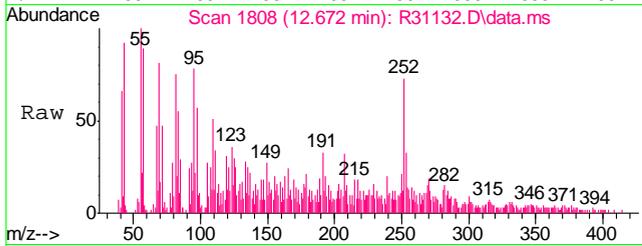


10.14 10



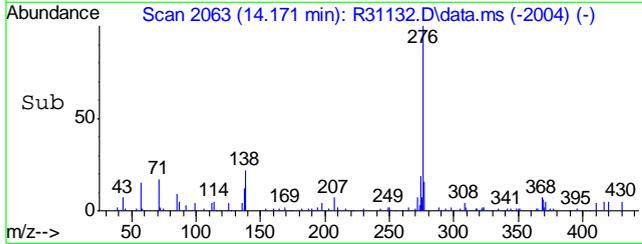
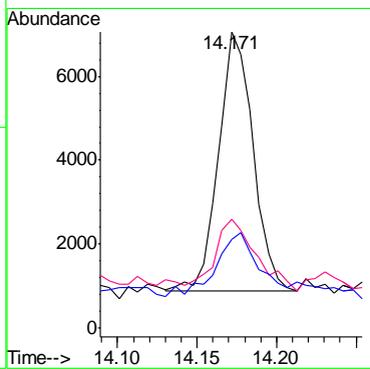
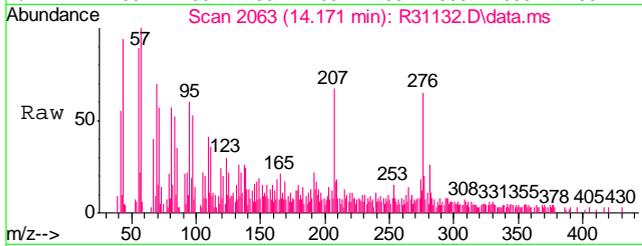
#94
 Benzo[a]pyrene
 Concen: 1.73 ppm
 RT: 12.672 min Scan# 1808
 Delta R.T. -0.103 min
 Lab File: R31132.D
 Acq: 2 Jun 2013 3:28 pm

Tgt Ion	Resp	Lower	Upper
252	10274		
253	29.5	0.0	51.5
125	12.7	0.0	41.6



#97
 Benzo[g,h,i]perylene
 Concen: 1.59 ppm
 RT: 14.171 min Scan# 2063
 Delta R.T. -0.156 min
 Lab File: R31132.D
 Acq: 2 Jun 2013 3:28 pm

Tgt Ion	Resp	Lower	Upper
276	9391		
138	27.6	0.0	54.4
277	21.9	0.0	53.5



10.14 10

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\R130603\
 Data File : R31165.D
 Acq On : 3 Jun 2013 10:35 pm
 Operator : kristinr
 Sample : op33425-mb
 Misc : OP33425,MSr1134,20.35,,,1,1
 ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jun 04 15:55:49 2013
 Quant Method : C:\msdchem\1\methods\R130530_8270+.m
 Quant Title : SW-864 Method 8270
 QLast Update : Thu May 30 14:53:36 2013
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.137	152	63095	40.00	ppm	-0.07
21) 1,4-Dichlorobenzene-d4A	4.137	152	63095	40.00	PPM	#-0.13
23) Naphthalene-d8	5.190	136	257784	40.00	ppm	-0.07
41) Naphthalene-d8a	5.190	136	257784	40.00	ppm	#-0.14
43) Acenaphthene-d10	6.719	164	102967	40.00	ppm	-0.07
65) Acenaphthene-d10a	6.719	164	102967	40.00	ppm	#-0.14
67) Phenanthrene-d10	8.101	188	203581m	40.00	ppm	-0.08
80) Phenanthrene-d10a	8.101	188	202939m	40.00	ppm	-0.16
82) Chrysene-d12	11.060	240	225674	40.00	ppm	-0.09
92) Perylene-d12	12.648	264	218300	40.00	ppm	-0.09
System Monitoring Compounds						
5) 2-Fluorophenol	3.207	112	82998	40.20	ppm	-0.06
Spiked Amount	100.000	Range	30 - 130	Recovery	=	40.20%
7) Phenol-d5	3.884	99	98865	37.25	ppm	-0.06
Spiked Amount	100.000	Range	30 - 130	Recovery	=	37.25%
24) Nitrobenzene-d5	4.607	82	87862	34.23	ppm	-0.07
Spiked Amount	50.000	Range	30 - 130	Recovery	=	68.46%
48) 2-Fluorobiphenyl	6.125	172	204207	56.35	ppm	-0.07
Spiked Amount	50.000	Range	30 - 130	Recovery	=	112.70%
71) 2,4,6-Tribromophenol	7.448	330	24346	37.22	ppm	-0.08
Spiked Amount	100.000	Range	30 - 130	Recovery	=	37.22%
85) Terphenyl-d14	9.842	244	209291	41.18	ppm	-0.08
Spiked Amount	50.000	Range	30 - 130	Recovery	=	82.36%

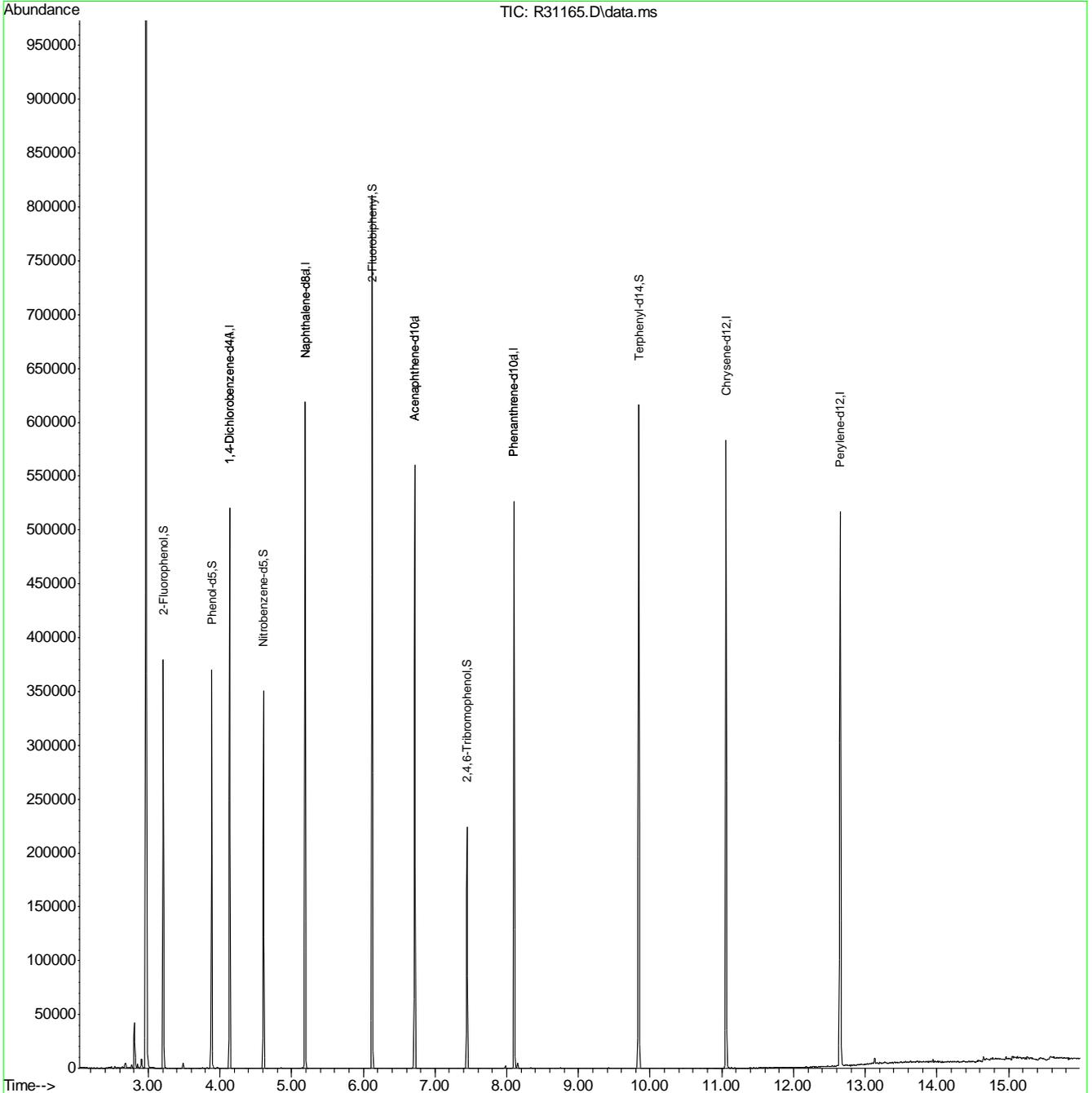
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\R130603\
 Data File : R31165.D
 Acq On : 3 Jun 2013 10:35 pm
 Operator : kristinr
 Sample : op33425-mb
 Misc : OP33425,MSr1134,20.35,,,1,1
 ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jun 04 15:55:49 2013
 Quant Method : C:\msdchem\1\methods\R130530_8270+.m
 Quant Title : SW-864 Method 8270
 QLast Update : Thu May 30 14:53:36 2013
 Response via : Initial Calibration



GC Volatiles

QC Data Summaries

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Surrogate Recovery Summaries
- GC Surrogate Retention Time Summaries
- Initial and Continuing Calibration Summaries

Method Blank Summary**Job Number:** JB37361**Account:** ALNJ Accutest New Jersey**Project:** AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP33407-MB	BB48222.D	1	05/31/13	CZ	05/30/13	OP33407	GBB2882

The QC reported here applies to the following samples:**Method:** SW846 8011

JB37361-1, JB37361-2, JB37361-3, JB37361-4

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	2.4	0.94	ug/kg	

CAS No.	Surrogate Recoveries	Limits	
460-00-4	Bromofluorobenzene (S)	114%	61-167%
460-00-4	Bromofluorobenzene (S)	124%	61-167%

Blank Spike Summary

Job Number: JB37361

Account: ALNJ Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP33407-BS	BB48223.D	1	05/31/13	CZ	05/30/13	OP33407	GBB2882

The QC reported here applies to the following samples:

Method: SW846 8011

JB37361-1, JB37361-2, JB37361-3, JB37361-4

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
106-93-4	1,2-Dibromoethane	33.1	36.9	111	56-140

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	Bromofluorobenzene (S)	105%	61-167%
460-00-4	Bromofluorobenzene (S)	106%	61-167%

11.2.1

11

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB37361

Account: ALNJ Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP33407-MS	BB48228.D	1	05/31/13	CZ	05/30/13	OP33407	GBB2882
OP33407-MSD	BB48229.D	1	05/31/13	CZ	05/30/13	OP33407	GBB2882
JB37361-1	BB48224.D	1	05/31/13	CZ	05/30/13	OP33407	GBB2882

The QC reported here applies to the following samples:

Method: SW846 8011

JB37361-1, JB37361-2, JB37361-3, JB37361-4

CAS No.	Compound	JB37361-1 ug/kg	Spike Q	ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
106-93-4	1,2-Dibromoethane	ND	36	47.0	131	42.7	118	10	48-141/27	

CAS No.	Surrogate Recoveries	MS	MSD	JB37361-1	Limits
460-00-4	Bromofluorobenzene (S)	124%	123%	125%	61-167%
460-00-4	Bromofluorobenzene (S)	125%	126%	131%	61-167%

11.3.1
11

* = Outside of Control Limits.

Volatile Surrogate Recovery Summary

Job Number: JB37361

Account: ALNJ Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Method: SW846 8011

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 ^a	S1 ^b
JB37361-1	BB48224.D	125.0	131.0
JB37361-2	BB48225.D	127.0	134.0
JB37361-3	BB48226.D	122.0	127.0
JB37361-4	BB48227.D	126.0	124.0
OP33407-BS	BB48223.D	105.0	106.0
OP33407-MB	BB48222.D	114.0	124.0
OP33407-MS	BB48228.D	124.0	125.0
OP33407-MSD	BB48229.D	123.0	126.0

Surrogate Compounds

Recovery Limits

S1 = Bromofluorobenzene (S)

61-167%

(a) Recovery from GC signal #2

(b) Recovery from GC signal #1

11.4.1

11

GC Surrogate Retention Time Summary

Job Number: JB37361
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Check Std: GBB2882-CC2879	Injection Date: 05/31/13
Lab File ID: BB48221.D	Injection Time: 08:54
Instrument ID: GCBB	Method: SW846 8011

S1^a RT **S1^b RT**

Check Std	5.01	4.79
-----------	------	------

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 ^a RT	S1 ^b RT
OP33407-MB	BB48222.D	05/31/13	09:32	5.01	4.79
OP33407-BS	BB48223.D	05/31/13	10:00	5.01	4.78
JB37361-1	BB48224.D	05/31/13	10:28	5.01	4.79
JB37361-2	BB48225.D	05/31/13	10:56	5.01	4.79
JB37361-3	BB48226.D	05/31/13	11:24	5.01	4.79
JB37361-4	BB48227.D	05/31/13	11:53	5.01	4.79
OP33407-MS	BB48228.D	05/31/13	12:22	5.01	4.79
OP33407-MSD	BB48229.D	05/31/13	12:50	5.01	4.79
GBB2882-ECC2879	BB48230.D	05/31/13	13:18	5.01	4.79

Surrogate Compounds

S1 = Bromofluorobenzene (S)

- (a) Retention time from GC signal #2
- (b) Retention time from GC signal #1

11.5.1
11

Initial Calibration Summary

Job Number: JB37361

Sample: GBB2879-ICC2879

Account: ALNJ Accutest New Jersey

Lab FileID: BB48168.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Response Factor Report GCB

Method : C:\msdchem\1\METHODS\ES130530.M (ChemStation Integrator)
Title : v801ledb soil
Last Update : Fri May 31 08:25:58 2013
Response via : Initial Calibration

Calibration Files

1 =bb48167.d 2 =bb48168.d 3 =bb48169.d 4 =bb48170.d
5 =bb48171.d 6 =bb48172.d

Compound	1	2	3	4	5	6	Avg	%RSD
1) 1,2-Dibromoethane	1.773	1.933	2.258	1.957	2.088	2.236	2.041	E5 9.25
2) s 4-Bromofluorobenzen	1.412	1.562	1.672	1.641	1.858	1.976	1.687	E4 12.04
----- Quadratic regression -----								Coefficient = 0.9999
Response Ratio = 11652.48742 + 16998.24739 *A + -14.70553 *A^2								
3) 1,2-Dibromo-3-chlor	5.785	5.733	5.800	5.742	5.860	6.224	5.857	E5 3.17

Signal #2

1) 1,2-Dibromoethane	2.023	2.136	2.445	1.988	2.116	2.095	2.134	E5 7.63
2) s 4-Bromofluorobenzen	1.568	1.626	1.697	1.593	1.616	1.572	1.612	E4 2.96
3) 1,2-Dibromo-3-chlor	6.399	6.196	6.107	5.845	5.708	5.744	6.000	E5 4.62

(#) = Out of Range

ES130530.M

Fri May 31 08:29:03 2013

11.6.1

11

Initial Calibration Verification

Job Number: JB37361

Sample: GBB2879-ICV2879

Account: ALNJ Accutest New Jersey

Lab FileID: BB48173.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\Bb...29\bb48173.d\ECD1A.CH Vial: 32
Acq On : 30-May-13, 10:23:51 Operator: caobinz
Sample : icv2879-20,edb 20-icv Inst : GCBB
Misc : op33407,gb2879,30,,,50,,soil Multiplr: 1.00
IntFile : events.e

Data File : C:\msdchem\1\DATA\Bb130529\bb48173.d\ECD2B.CH Vial: 0
Acq On : 30-May-13, 10:23:51 Operator: caobinz
Sample : edb 20-icv Inst : GCBB
Misc : op33407,gb2879,30,,,50,,soil Multiplr: 1.00
IntFile : events2.e

Method : C:\msdchem\1\METHODS\ES130530.M (ChemStation Integrator)
Title : v801ledb soil
Last Update : Fri May 31 08:25:58 2013
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 85% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 115%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	RT	Window
1 1,2-Dibromoethane	204.089	216.461 E3	-6.1	112	0.00	3.76-	3.82
----- True		Calc.	% Drift		-----		
2 s 4-Bromofluorobenzene	100.000	102.403	-2.4	102	0.00	4.76-	4.82
----- AvgRF		CCRF	% Dev		-----		
3 1,2-Dibromo-3-chloropr	585.725	585.073 E3	0.1	102	0.00	6.42-	6.48
***** Signal #2 *****							
1 1,2-Dibromoethane	213.384	224.070 E3	-5.0	105	0.00	3.83-	3.89
2 s 4-Bromofluorobenzene	16.122	16.830 E3	-4.4	103	0.00	4.98-	5.04
3 1,2-Dibromo-3-chloropr	599.982	612.788 E3	-2.1	99	0.00	6.39-	6.45

(#) = Out of Range SPCC's out = 0 CCC's out = 0
bb48168.d ES130530.M Fri May 31 08:28:38 2013

11.62
11

Continuing Calibration Summary

Job Number: JB37361

Sample: GBB2882-CC2879

Account: ALNJ Accutest New Jersey

Lab FileID: BB48221.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\Bb...31\bb48221.d\ECD1A.CH Vial: 96
Acq On : 31-May-13, 08:54:26 Operator: caobinz
Sample : cc2879-20,edb 20 soil Inst : GCBB
Misc : op33407,gb2882,30,,,50,,soil Multiplr: 1.00
IntFile : events.e

Data File : C:\msdchem\1\DATA\Bb130531\bb48221.d\ECD2B.CH Vial: 0
Acq On : 31-May-13, 08:54:26 Operator: caobinz
Sample : edb 20 soil Inst : GCBB
Misc : op33407,gb2882,30,,,50,,soil Multiplr: 1.00
IntFile : events2.e

Method : C:\msdchem\1\METHODS\ES130531.M (ChemStation Integrator)
Title : v801ledb soil
Last Update : Fri May 31 08:25:58 2013
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 85% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 115%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	RT	Window
1 1,2-Dibromoethane	204.089	177.829 E3	12.9	92	0.00	3.76-	3.82
----- True Calc. % Drift -----							
2 s 4-Bromofluorobenzene	100.000	92.767	7.2	94	0.00	4.76-	4.82
----- AvgRF CCRF % Dev -----							
3 1,2-Dibromo-3-chloropr	585.725	533.925 E3	8.8	93	0.00	6.42-	6.48
***** Signal #2 *****							
1 1,2-Dibromoethane	213.384	184.587 E3	13.5	86	0.00	3.83-	3.89
2 s 4-Bromofluorobenzene	16.122	14.580 E3	9.6	90	0.00	4.98-	5.04
3 1,2-Dibromo-3-chloropr	599.982	535.444 E3	10.8	86	0.00	6.39-	6.45

(#) = Out of Range SPCC's out = 0 CCC's out = 0
bb48168.d ES130531.M Fri May 31 12:14:49 2013

11.6.3
11

Continuing Calibration Summary

Job Number: JB37361

Sample: GBB2882-ECC2879

Account: ALNJ Accutest New Jersey

Lab FileID: BB48230.D

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\Bb...31\bb48230.d\ECD1A.CH Vial: 96
Acq On : 31-May-13, 13:18:25 Operator: caobinz
Sample : ecc2879-20,edb 20 Inst : GCBB
Misc : op33407,gb2882,30,,,50,,soil Multiplr: 1.00
IntFile : events.e

Data File : C:\msdchem\1\DATA\Bb130531\bb48230.d\ECD2B.CH Vial: 0
Acq On : 31-May-13, 13:18:25 Operator: caobinz
Sample : edb 20 Inst : GCBB
Misc : op33407,gb2882,30,,,50,,soil Multiplr: 1.00
IntFile : events2.e

Method : C:\msdchem\1\METHODS\ES130531.M (ChemStation Integrator)
Title : v801ledb soil
Last Update : Fri May 31 08:25:58 2013
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 85% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 115%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	RT	Window
1 1,2-Dibromoethane	204.089	192.969 E3	5.4	100	0.00	3.76-	3.82
----- True		Calc.	% Drift		-----		
2 s 4-Bromofluorobenzene	100.000	102.574	-2.6	102	0.00	4.76-	4.82
----- AvgRF		CCRF	% Dev		-----		
3 1,2-Dibromo-3-chloropr	585.725	528.964 E3	9.7	92	0.00	6.42-	6.48
***** Signal #2 *****							
1 1,2-Dibromoethane	213.384	228.127 E3	-6.9	107	0.00	3.83-	3.89
2 s 4-Bromofluorobenzene	16.122	14.951 E3	7.3	92	0.00	4.98-	5.04
3 1,2-Dibromo-3-chloropr	599.982	527.604 E3	12.1	85	0.00	6.39-	6.45

(#) = Out of Range SPCC's out = 0 CCC's out = 0
bb48168.d ES130531.M Fri May 31 14:05:58 2013

11.64
11

GC Volatiles

Raw Data

(Accutest Labs of New England, Inc.)

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\Bb130531\
 Data File : bb48224.d
 Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
 Acq On : 31-May-13, 10:28:29
 Operator : caobinz
 Sample : jb37361-1
 Misc : op33407,gb2882,30.43,,,50,,soil
 ALS Vial : 3 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
 Integration File signal 2: events2.e
 Quant Time: May 31 12:17:43 2013
 Quant Method : C:\msdchem\1\METHODS\ES130531.M
 Quant Title : v801ledb soil
 QLast Update : Fri May 31 08:25:58 2013
 Response via : Initial Calibration
 Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

Compound	RT#1	RT#2	Resp#1	Resp#2	ug/L	ug/L

System Monitoring Compounds						
2) s 4-Bromofl...	4.788	5.012	1063973	1008048	65.634m	62.528m
Spiked Amount	50.000	Range 61 - 167	Recovery =	131.27%	125.06%	
Target Compounds						
1) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
3) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

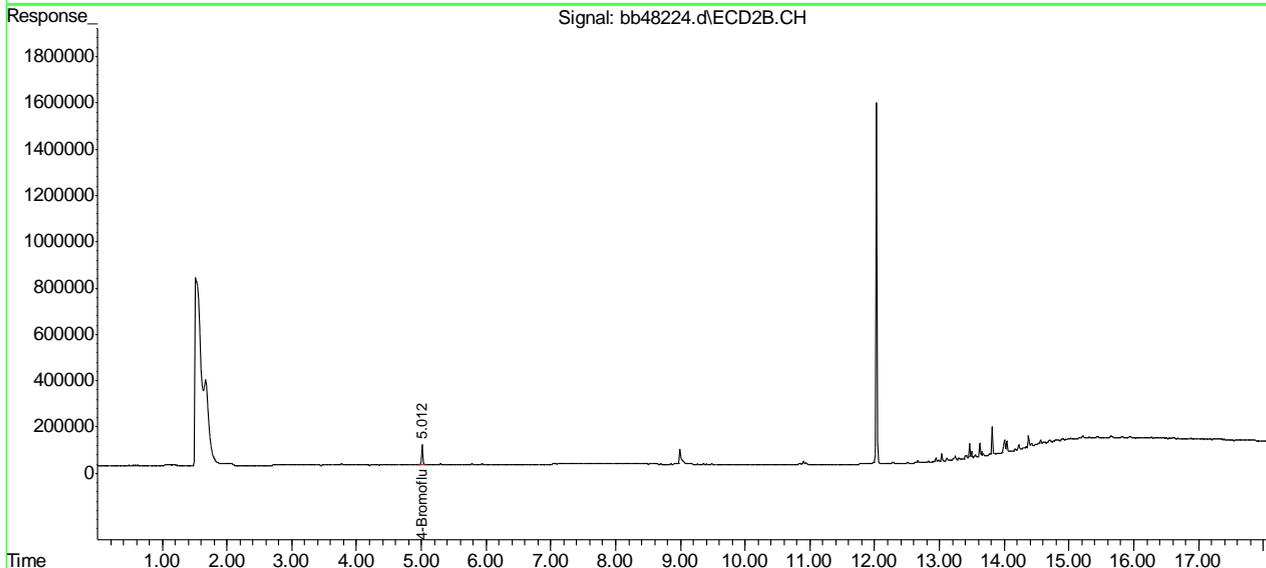
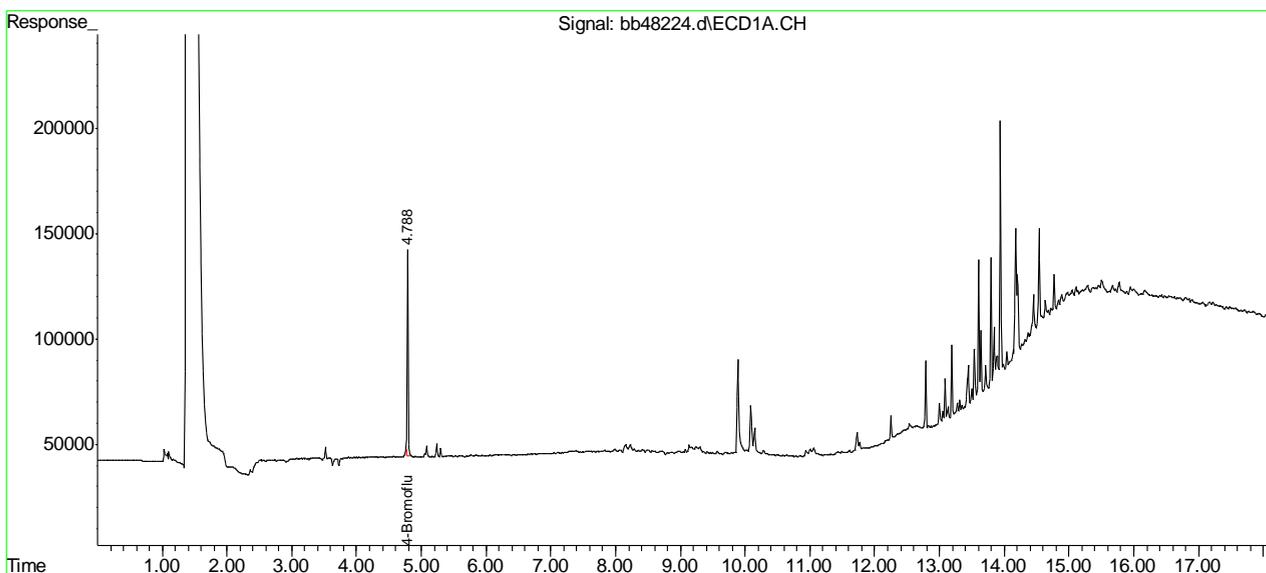
12.1.1
12

Quantitation Report (QT Reviewed)

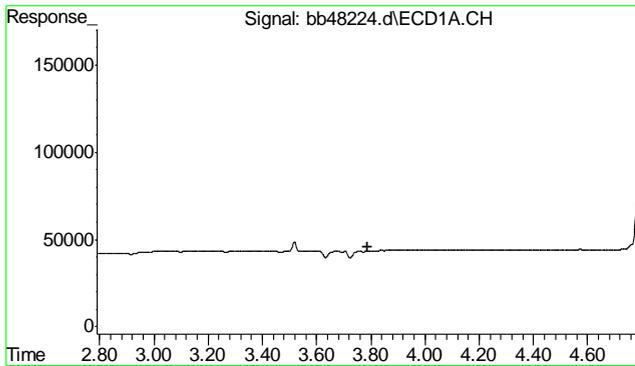
Data Path : C:\msdchem\1\DATA\Bb130531\
 Data File : bb48224.d
 Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
 Acq On : 31-May-13, 10:28:29
 Operator : caobinz
 Sample : jb37361-1
 Misc : op33407,gb2882,30.43,,,50,,soil
 ALS Vial : 3 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
 Integration File signal 2: events2.e
 Quant Time: May 31 12:17:43 2013
 Quant Method : C:\msdchem\1\METHODS\ES130531.M
 Quant Title : v801ledb soil
 QLast Update : Fri May 31 08:25:58 2013
 Response via : Initial Calibration
 Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

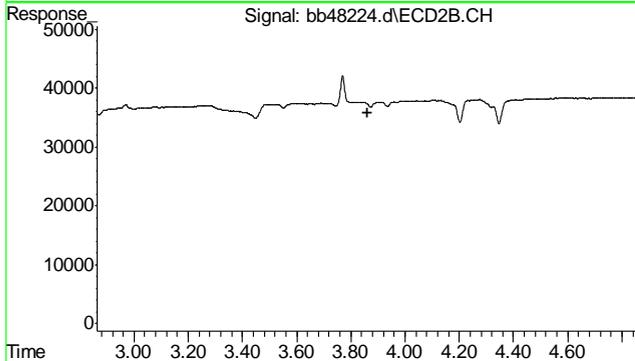
Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :



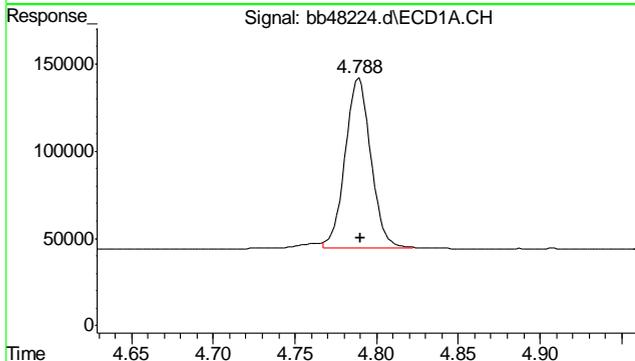
12.1.1
12



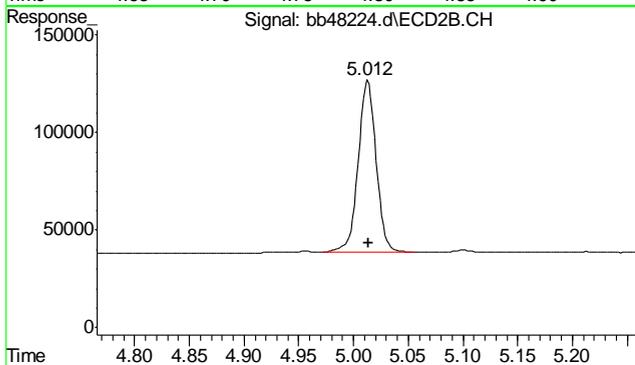
#1 1,2-Dibromoethane
 R.T.: 0.000 min
 Exp R.T. : 3.789 min
 Response: 0
 Conc: N.D.



#1 1,2-Dibromoethane
 R.T.: 0.000 min
 Exp R.T. : 3.863 min
 Response: 0
 Conc: N.D.

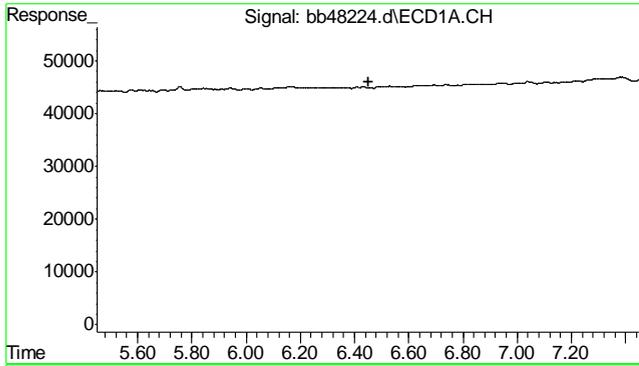


#2 4-Bromofluorobenzene
 R.T.: 4.788 min
 Delta R.T.: -0.002 min
 Response: 1063973
 Conc: 65.63 ug/L m

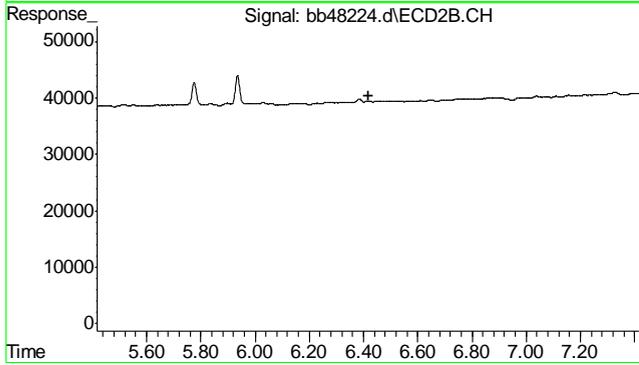


#2 4-Bromofluorobenzene
 R.T.: 5.012 min
 Delta R.T.: -0.002 min
 Response: 1008048
 Conc: 62.53 ug/L m

12.1.1
12



#3 1,2-Dibromo-3-chloropropane
R.T.: 0.000 min
Exp R.T. : 6.450 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane
R.T.: 0.000 min
Exp R.T. : 6.417 min
Response: 0
Conc: N.D.

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\Bb130531\
 Data File : bb48225.d
 Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
 Acq On : 31-May-13, 10:56:41
 Operator : caobinz
 Sample : jb37361-2
 Misc : op33407, gbb2882, 30.19, , , 50, , soil
 ALS Vial : 4 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
 Integration File signal 2: events2.e
 Quant Time: May 31 12:18:24 2013
 Quant Method : C:\msdchem\1\METHODS\ES130531.M
 Quant Title : v801ledb soil
 QLast Update : Fri May 31 08:25:58 2013
 Response via : Initial Calibration
 Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

Compound	RT#1	RT#2	Resp#1	Resp#2	ug/L	ug/L

System Monitoring Compounds						
2) s 4-Bromofl...	4.788	5.012	1081155	1026382	66.776m	63.665m
Spiked Amount	50.000	Range 61 - 167	Recovery	=	133.55%	127.33%
Target Compounds						
1) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
3) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

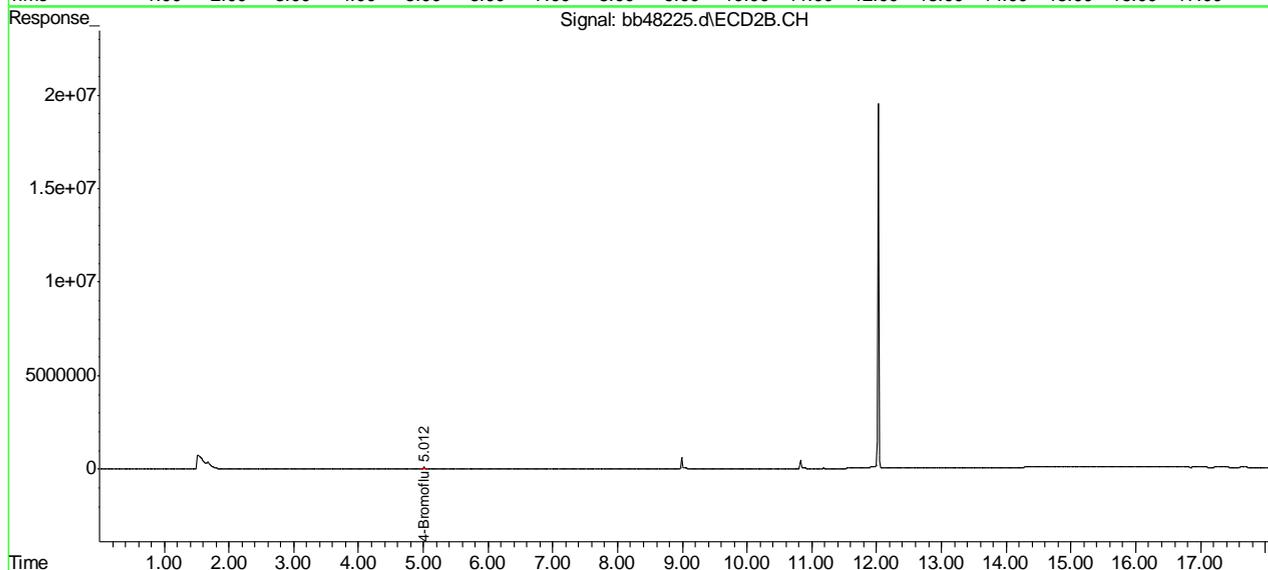
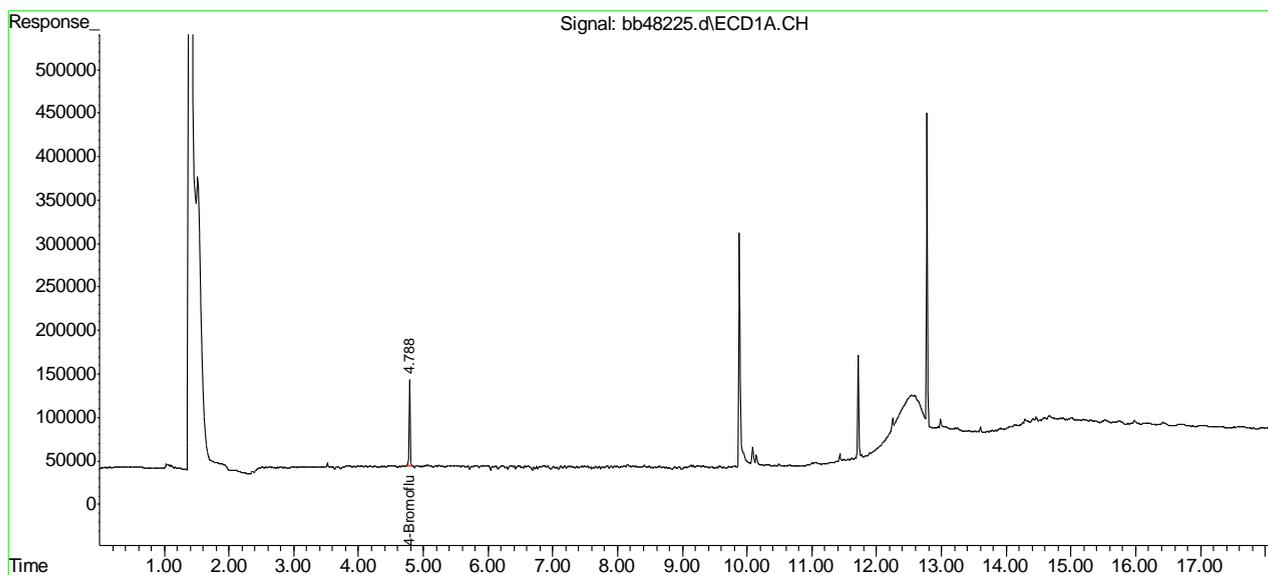
12.1.2
12

Quantitation Report (QT Reviewed)

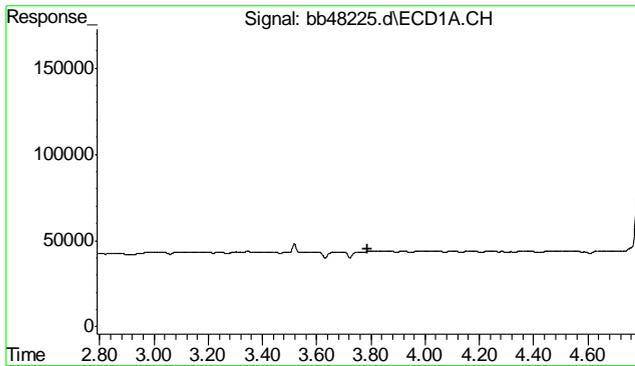
Data Path : C:\msdchem\1\DATA\Bb130531\
 Data File : bb48225.d
 Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
 Acq On : 31-May-13, 10:56:41
 Operator : caobinz
 Sample : jb37361-2
 Misc : op33407,gbb2882,30.19,,,50,,soil
 ALS Vial : 4 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
 Integration File signal 2: events2.e
 Quant Time: May 31 12:18:24 2013
 Quant Method : C:\msdchem\1\METHODS\ES130531.M
 Quant Title : v801ledb soil
 QLast Update : Fri May 31 08:25:58 2013
 Response via : Initial Calibration
 Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

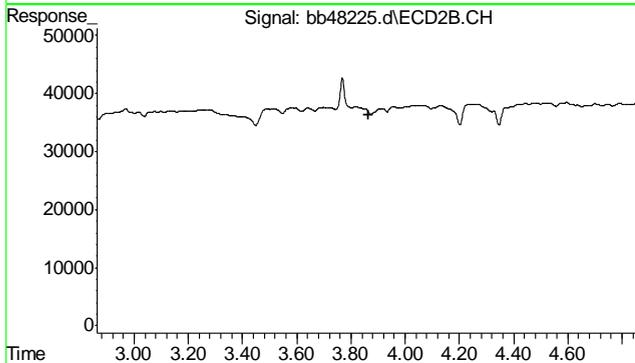
Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :



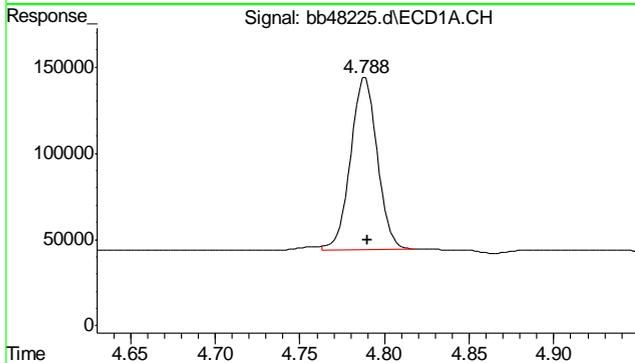
12.1.2
12



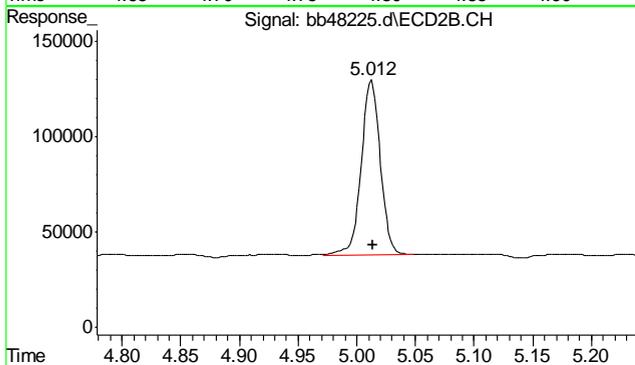
#1 1,2-Dibromoethane
 R.T.: 0.000 min
 Exp R.T. : 3.789 min
 Response: 0
 Conc: N.D.



#1 1,2-Dibromoethane
 R.T.: 0.000 min
 Exp R.T. : 3.863 min
 Response: 0
 Conc: N.D.

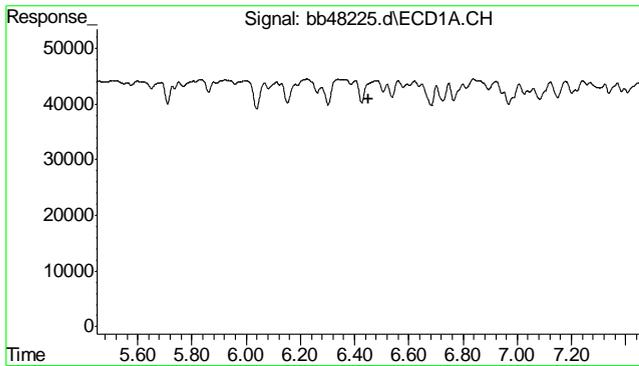


#2 4-Bromofluorobenzene
 R.T.: 4.788 min
 Delta R.T.: -0.002 min
 Response: 1081155
 Conc: 66.78 ug/L m

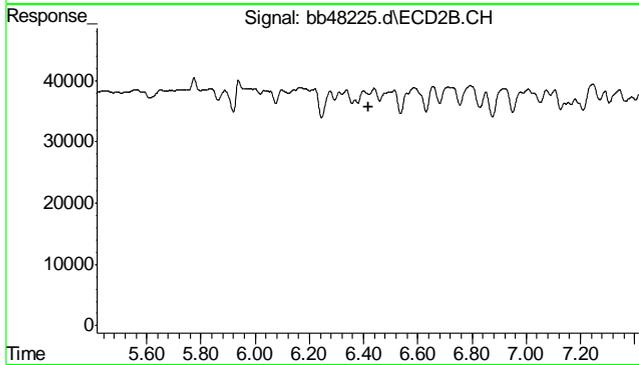


#2 4-Bromofluorobenzene
 R.T.: 5.012 min
 Delta R.T.: -0.002 min
 Response: 1026382
 Conc: 63.67 ug/L m

12.1.2 12



#3 1,2-Dibromo-3-chloropropane
R.T.: 0.000 min
Exp R.T. : 6.450 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane
R.T.: 0.000 min
Exp R.T. : 6.417 min
Response: 0
Conc: N.D.

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\Bb130531\
 Data File : bb48226.d
 Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
 Acq On : 31-May-13, 11:24:44
 Operator : caobinz
 Sample : jb37361-3
 Misc : op33407,gb2882,30.52,,,50,,soil
 ALS Vial : 5 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
 Integration File signal 2: events2.e
 Quant Time: May 31 12:19:04 2013
 Quant Method : C:\msdchem\1\METHODS\ES130531.M
 Quant Title : v801ledb soil
 QLast Update : Fri May 31 08:25:58 2013
 Response via : Initial Calibration
 Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

Compound	RT#1	RT#2	Resp#1	Resp#2	ug/L	ug/L

System Monitoring Compounds						
2) s 4-Bromofl...	4.788	5.012	1032021	985688	63.518m	61.141m
Spiked Amount	50.000	Range 61 - 167	Recovery	=	127.04%	122.28%
Target Compounds						
1) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
3) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

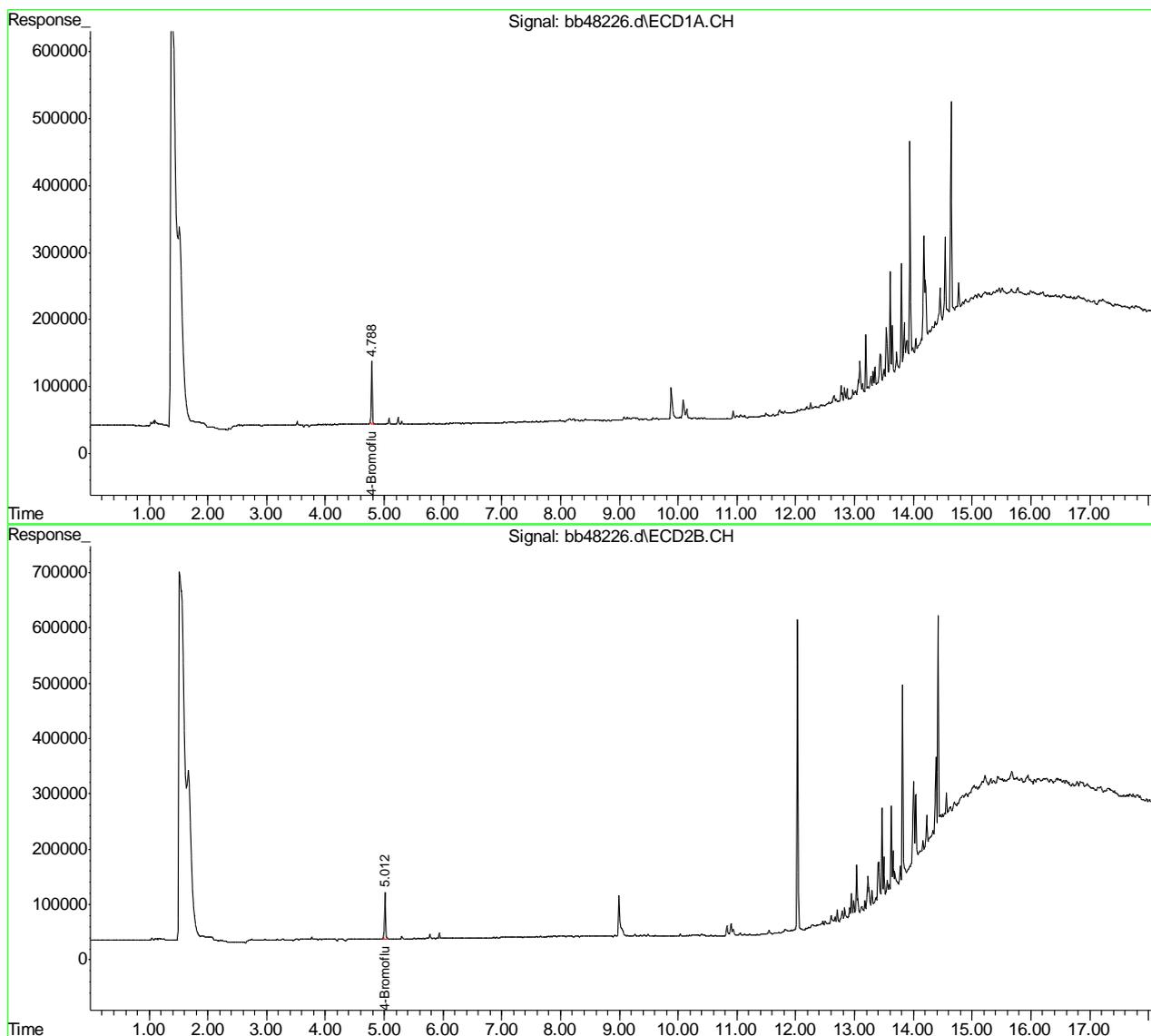
12.1.3
12

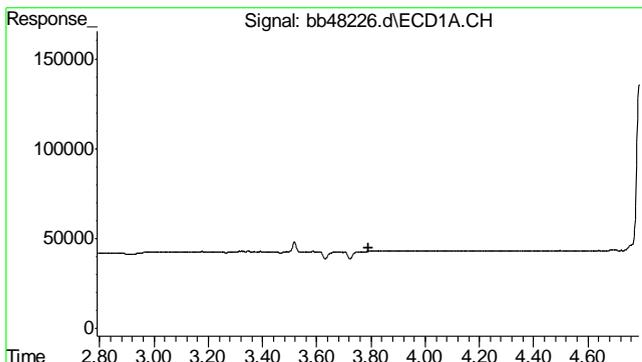
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\Bb130531\
Data File : bb48226.d
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 31-May-13, 11:24:44
Operator : caobinz
Sample : jb37361-3
Misc : op33407,gbb2882,30.52,,,50,,soil
ALS Vial : 5 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

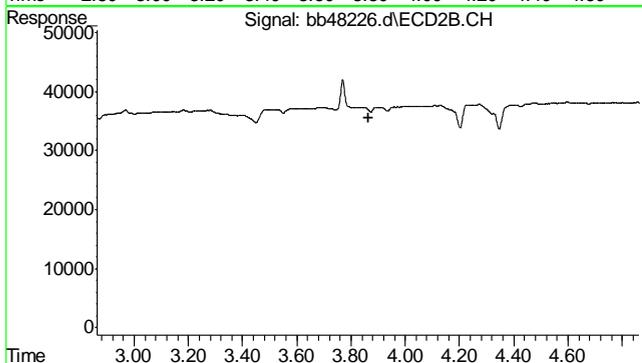
Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: May 31 12:19:04 2013
Quant Method : C:\msdchem\1\METHODS\ES130531.M
Quant Title : v801ledb soil
QLast Update : Fri May 31 08:25:58 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

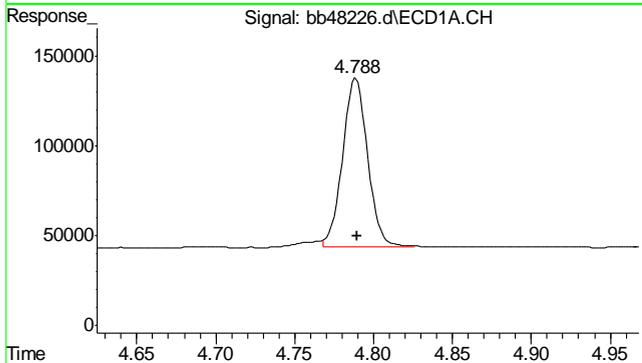
12.1.3
12



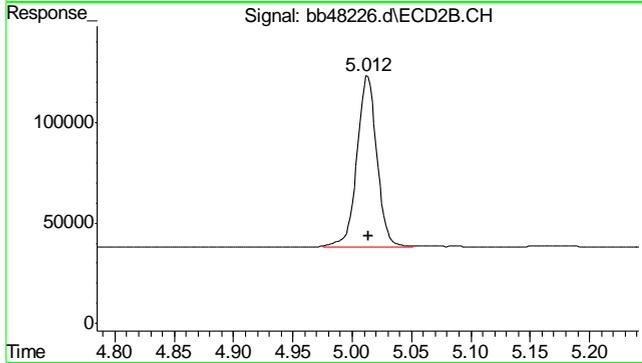
#1 1,2-Dibromoethane
 R.T.: 0.000 min
 Exp R.T.: 3.789 min
 Response: 0
 Conc: N.D.



#1 1,2-Dibromoethane
 R.T.: 0.000 min
 Exp R.T.: 3.863 min
 Response: 0
 Conc: N.D.

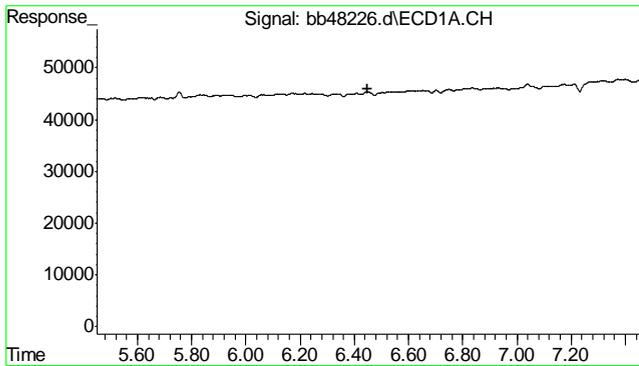


#2 4-Bromofluorobenzene
 R.T.: 4.788 min
 Delta R.T.: -0.002 min
 Response: 1032021
 Conc: 63.52 ug/L m

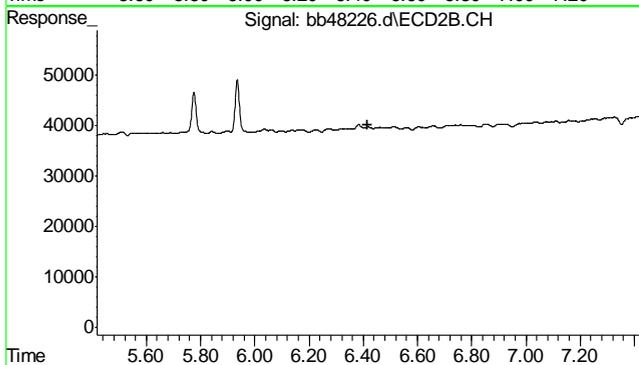


#2 4-Bromofluorobenzene
 R.T.: 5.012 min
 Delta R.T.: -0.002 min
 Response: 985688
 Conc: 61.14 ug/L m

12.1.3
 12



#3 1,2-Dibromo-3-chloropropane
R.T.: 0.000 min
Exp R.T. : 6.450 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane
R.T.: 0.000 min
Exp R.T. : 6.417 min
Response: 0
Conc: N.D.

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\Bb130531\
 Data File : bb48227.d
 Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
 Acq On : 31-May-13, 11:53:58
 Operator : caobinz
 Sample : jb37361-4
 Misc : op33407,gb2882,30.19,,,50,,soil
 ALS Vial : 6 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
 Integration File signal 2: events2.e
 Quant Time: May 31 12:19:43 2013
 Quant Method : C:\msdchem\1\METHODS\ES130531.M
 Quant Title : v801ledb soil
 QLast Update : Fri May 31 08:25:58 2013
 Response via : Initial Calibration
 Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

Compound	RT#1	RT#2	Resp#1	Resp#2	ug/L	ug/L

System Monitoring Compounds						
2) s 4-Bromofl...	4.789	5.013	1006804	1016961	61.854m	63.081m
Spiked Amount	50.000	Range 61 - 167	Recovery	=	123.71%	126.16%
Target Compounds						
1) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
3) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

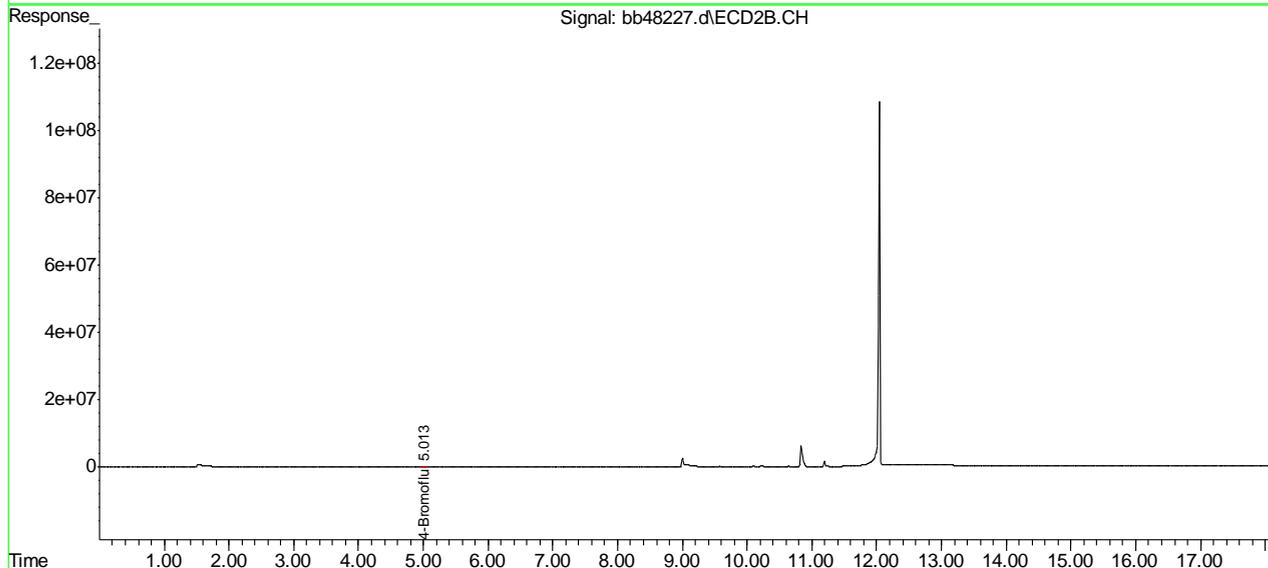
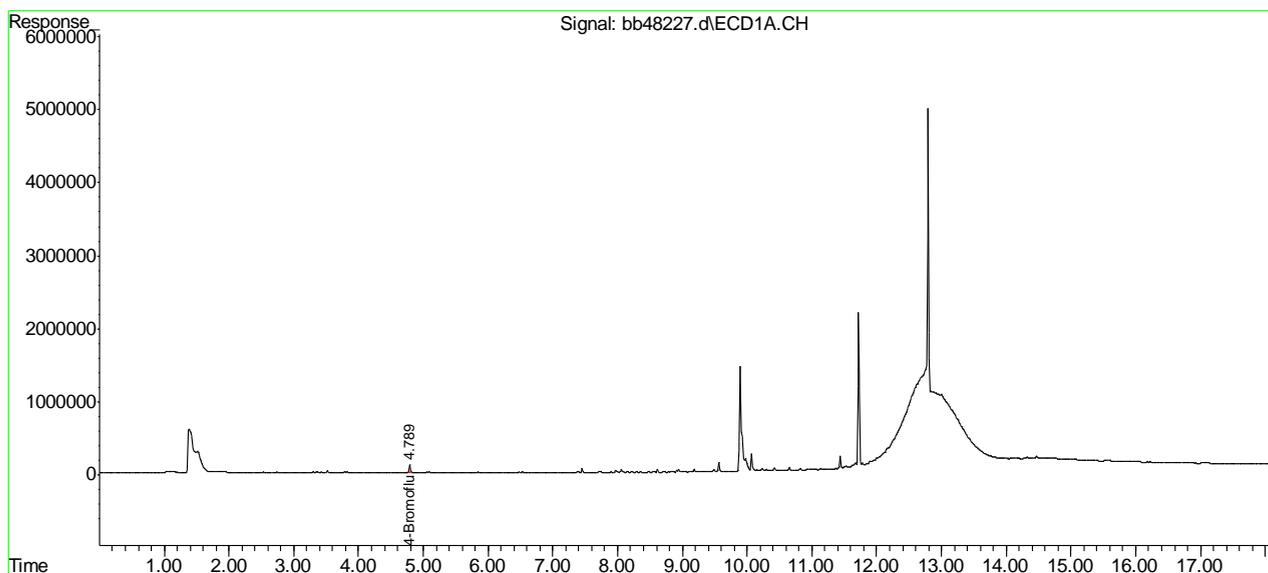
12.14
12

Quantitation Report (QT Reviewed)

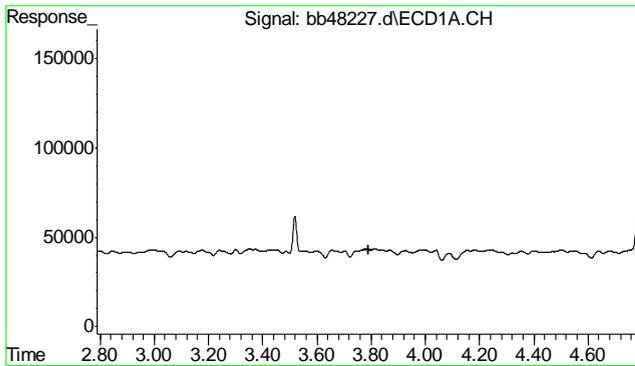
Data Path : C:\msdchem\1\DATA\Bb130531\
 Data File : bb48227.d
 Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
 Acq On : 31-May-13, 11:53:58
 Operator : caobinz
 Sample : jb37361-4
 Misc : op33407,gb2882,30.19,,,50,,soil
 ALS Vial : 6 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
 Integration File signal 2: events2.e
 Quant Time: May 31 12:19:43 2013
 Quant Method : C:\msdchem\1\METHODS\ES130531.M
 Quant Title : v801ledb soil
 QLast Update : Fri May 31 08:25:58 2013
 Response via : Initial Calibration
 Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

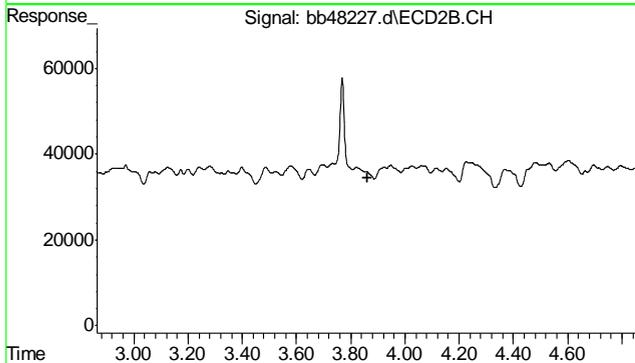
Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :



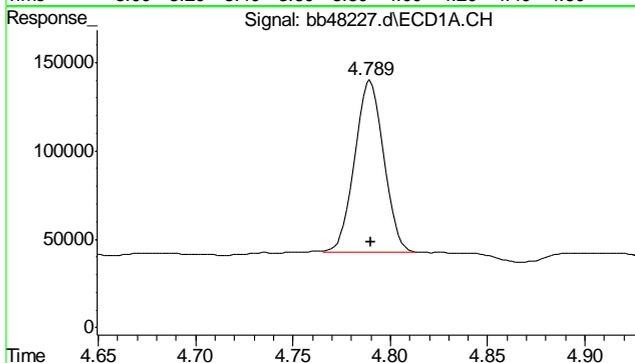
12.1.4
12



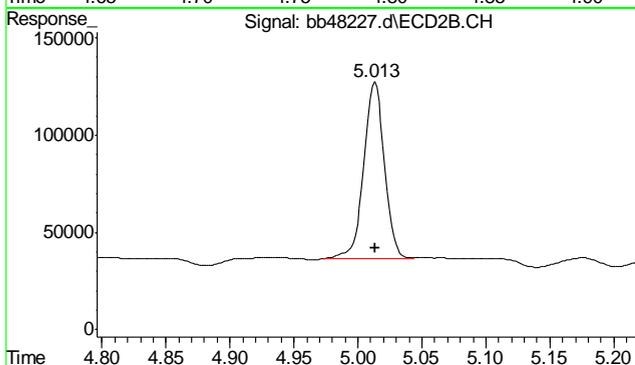
#1 1,2-Dibromoethane
 R.T.: 0.000 min
 Exp R.T. : 3.789 min
 Response: 0
 Conc: N.D.



#1 1,2-Dibromoethane
 R.T.: 0.000 min
 Exp R.T. : 3.863 min
 Response: 0
 Conc: N.D.

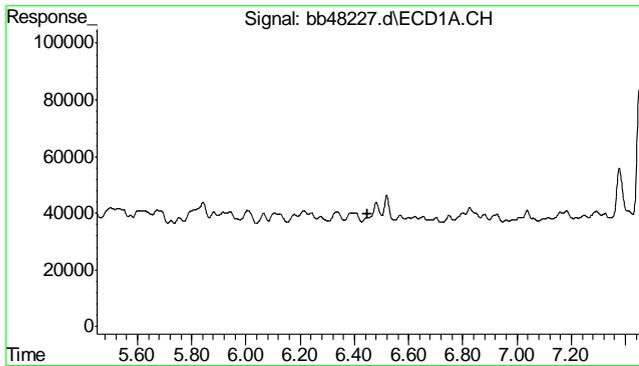


#2 4-Bromofluorobenzene
 R.T.: 4.789 min
 Delta R.T.: 0.000 min
 Response: 1006804
 Conc: 61.85 ug/L m

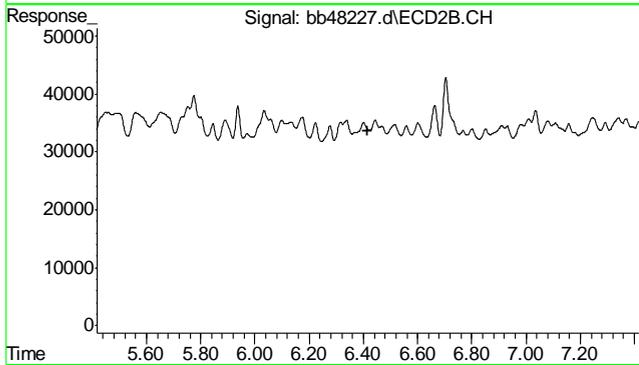


#2 4-Bromofluorobenzene
 R.T.: 5.013 min
 Delta R.T.: -0.001 min
 Response: 1016961
 Conc: 63.08 ug/L m

12.14
12



#3 1,2-Dibromo-3-chloropropane
R.T.: 0.000 min
Exp R.T. : 6.450 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane
R.T.: 0.000 min
Exp R.T. : 6.417 min
Response: 0
Conc: N.D.

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\Bb130531\
 Data File : bb48222.d
 Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
 Acq On : 31-May-13, 09:32:16
 Operator : caobinz
 Sample : op33407-mb
 Misc : op33407,gbp2882,30.77,,,50,,soil
 ALS Vial : 1 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

Integration File signal 1: events.e
 Integration File signal 2: events2.e
 Quant Time: May 31 12:15:54 2013
 Quant Method : C:\msdchem\1\METHODS\ES130531.M
 Quant Title : v801ledb soil
 QLast Update : Fri May 31 08:25:58 2013
 Response via : Initial Calibration
 Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
 Signal #1 Phase : Signal #2 Phase:
 Signal #1 Info : Signal #2 Info :

Compound	RT#1	RT#2	Resp#1	Resp#2	ug/L	ug/L

System Monitoring Compounds						
2) s 4-Bromofl...	4.788	5.009	1011285	921885	62.150m	57.184m
Spiked Amount	50.000	Range 61 - 167	Recovery	=	124.30%	114.37%
Target Compounds						
1) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
3) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

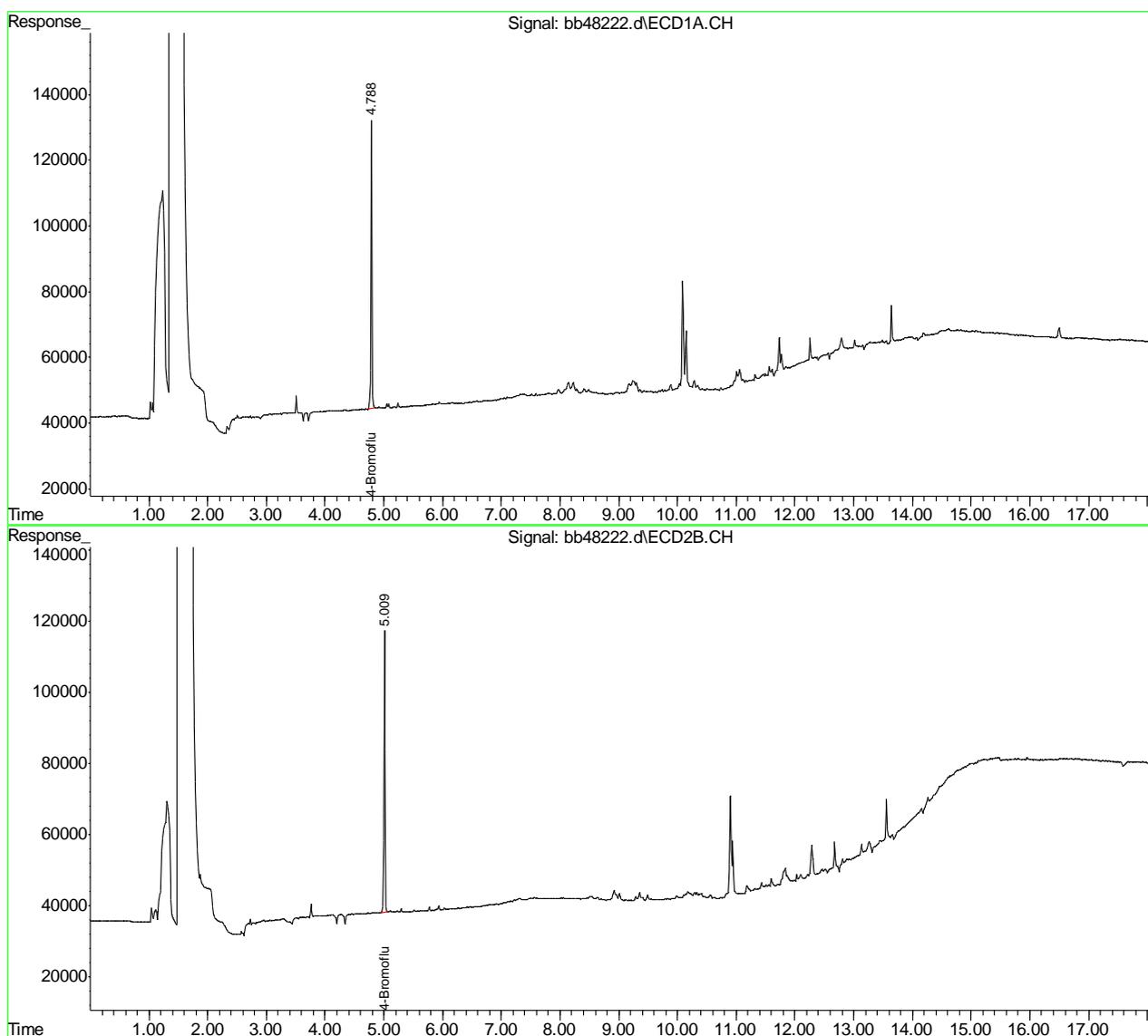
12.2.1
12

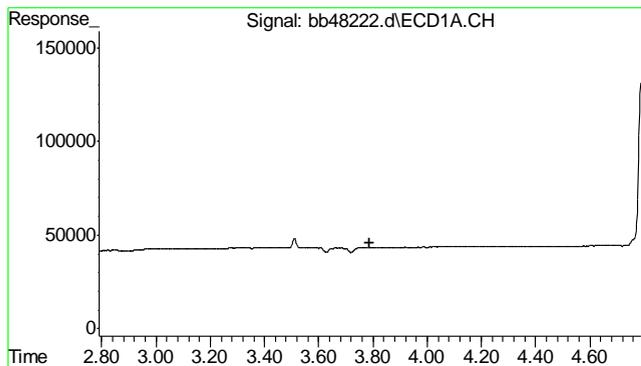
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\Bb130531\
Data File : bb48222.d
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH
Acq On : 31-May-13, 09:32:16
Operator : caobinz
Sample : op33407-mb
Misc : op33407,gb2882,30.77,,,50,,soil
ALS Vial : 1 (Sig #1); 0 (Sig #2) Sample Multiplier: 1

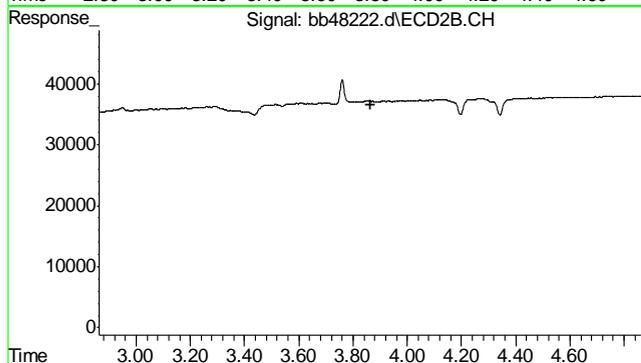
Integration File signal 1: events.e
Integration File signal 2: events2.e
Quant Time: May 31 12:15:54 2013
Quant Method : C:\msdchem\1\METHODS\ES130531.M
Quant Title : v801ledb soil
QLast Update : Fri May 31 08:25:58 2013
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

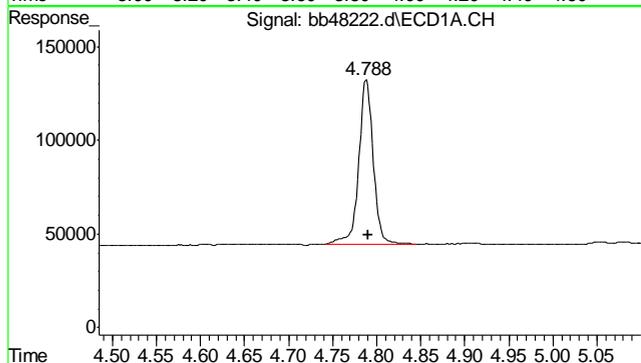




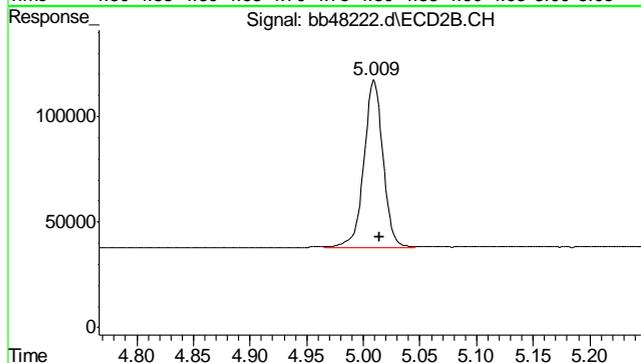
#1 1,2-Dibromoethane
 R.T.: 0.000 min
 Exp R.T. : 3.789 min
 Response: 0
 Conc: N.D.



#1 1,2-Dibromoethane
 R.T.: 0.000 min
 Exp R.T. : 3.863 min
 Response: 0
 Conc: N.D.

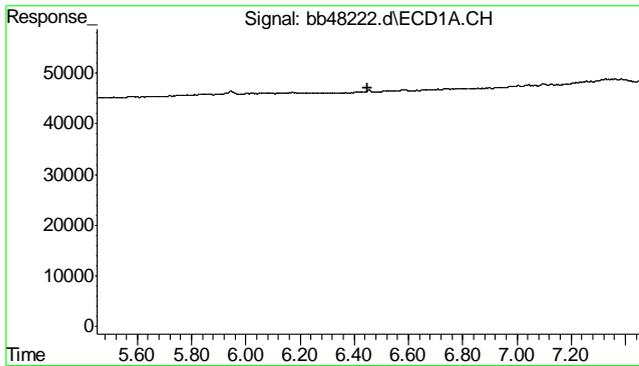


#2 4-Bromofluorobenzene
 R.T.: 4.788 min
 Delta R.T.: -0.002 min
 Response: 1011285
 Conc: 62.15 ug/L m

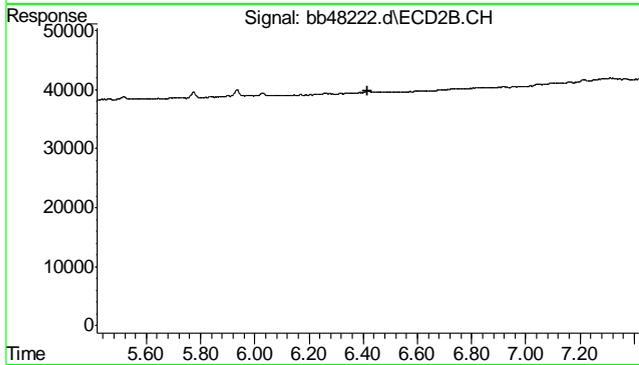


#2 4-Bromofluorobenzene
 R.T.: 5.009 min
 Delta R.T.: -0.005 min
 Response: 921885
 Conc: 57.18 ug/L m

12.2.1
12



#3 1,2-Dibromo-3-chloropropane
R.T.: 0.000 min
Exp R.T. : 6.450 min
Response: 0
Conc: N.D.



#3 1,2-Dibromo-3-chloropropane
R.T.: 0.000 min
Exp R.T. : 6.417 min
Response: 0
Conc: N.D.

Metals Analysis

QC Data Summaries

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

- Instrument Runlogs
- Initial and Continuing Calibration Blanks
- Initial and Continuing Calibration Checks
- High and Low Check Standards
- Interfering Element Check Standards
- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB37361
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M1.ICP Date Analyzed: 05/31/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15686
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
10:15	MA15686-STD1	1		STD1
10:19	MA15686-STD2	1		STD2
10:24	MA15686-STD3	1		STD3
10:28	MA15686-STD4	1		STD4
10:32	MA15686-ICV1	1		
10:39	MA15686-ICB1	1		
10:43	MA15686-CCV1	1		
10:48	MA15686-CCB1	1		
10:53	MA15686-CRIA1	1		
10:57	MA15686-ICSA1	1		
11:01	MA15686-ICSAB1	1		
11:06	MP21087-B1	1		
11:10	MP21087-MB1	1		
11:14	MP21087-S1	1		
11:19	MP21087-S2	1		
11:23	MC21207-1	1		(sample used for QC only; not part of login JB37361)
11:28	MP21087-SD1	5		
11:32	MP21087-B2	1		
11:36	MA15686-CCV2	1		
11:40	MA15686-CCB2	1		
11:44	MP21087-LC1	1		
11:49	JB37361-1	1		
11:53	JB37361-2	1		
11:57	JB37361-3	1		
12:02	JB37361-4	1		
12:06	ZZZZZZ	1		
12:11	ZZZZZZ	1		
12:15	ZZZZZZ	1		
12:19	ZZZZZZ	1		
12:24	ZZZZZZ	10		
12:28	MA15686-CCV3	1		
12:32	MA15686-CCB3	1		
12:37	ZZZZZZ	1		

13.1
13

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB37361
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M1.ICP Date Analyzed: 05/31/13 Methods: SW846 6010C
Analyst: EAL Run ID: MA15686
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
12:41	ZZZZZZ	1		
12:46	ZZZZZZ	1		
12:50	ZZZZZZ	1		
12:54	ZZZZZZ	10		
12:59	ZZZZZZ	10		
13:03	ZZZZZZ	10		
13:07	ZZZZZZ	10		
13:12	ZZZZZZ	10		
13:16	ZZZZZZ	10		
13:20	MA15686-CCV4	1		
13:28	MA15686-CCB4	1		
13:37	MP21087-PS1	1		
----->	Last reportable sample/prep for job JB37361			
13:43	ZZZZZZ	1		DNR: SEE RERUN FOR CRIA.
13:51	MA15686-CRIA2	1		
13:55	MA15686-CRIB1	1		
14:00	MP21091-B1	1		
14:04	MP21091-MB1	1		
14:08	MP21091-S1	1		
14:13	MP21091-S2	1		
14:17	MC21295-7A	1		(sample used for QC only; not part of login JB37361)
14:22	MP21091-SD1	5		
14:26	MA15686-CCV5	1		
14:31	MA15686-CCB5	1		
14:35	MP21091-LB1	1		
14:39	ZZZZZZ	1		
14:44	ZZZZZZ	1		
14:48	ZZZZZZ	1		
14:53	ZZZZZZ	1		
14:58	ZZZZZZ	1		
15:02	ZZZZZZ	1		
15:07	MA15686-CRIB2	1		SB AND NA OUT.
15:11	MA15686-ICSA2	1		
15:16	MA15686-ICSAB2	1		

13.1
13

Accutest Laboratories Instrument Runlog
Inorganics Analyses

Login Number: JB37361

Account: ALNJ - Accutest New Jersey

Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M1.ICP

Date Analyzed: 05/31/13

Methods: SW846 6010C

Analyst: EAL

Run ID: MA15686

Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
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15:20 MA15686-CCV6 1

15:24 MA15686-CCB6 1

----->

Last reportable CCB for job JB37361

Refer to raw data for calibration curve and standards.

INTERNAL STANDARD SUMMARY

Login Number: JB37361
 Account: ALNJ - Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M1.ICP Date Analyzed: 05/31/13 Methods: SW846 6010C
 Analyst: EAL Run ID: MA15686
 Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3
10:15	MA15686-STD1	2467 R	59590 R	14114 R
10:19	MA15686-STD2	2475	59773	14118
10:24	MA15686-STD3			14166
10:28	MA15686-STD4	2503	59367	14177
10:32	MA15686-ICV1	2461	58824	14064
10:39	MA15686-ICB1	2486	59763	14050
10:43	MA15686-CCV1	2472	59722	14228
10:48	MA15686-CCB1	2466	59733	13968
10:53	MA15686-CRIA1	2474	59698	13992
10:57	MA15686-ICSA1	2263	55671	13750
11:01	MA15686-ICSAB1	2280	55617	13790
11:06	MP21087-B1	2460	59284	14129
11:10	MP21087-MB1	2472	59566	14245
11:14	MP21087-S1	2886	69493	17063
11:19	MP21087-S2	2860	69518	16897
11:23	MC21207-1	2895	70684	17034
11:28	MP21087-SD1	2562	61488	14703
11:32	MP21087-B2	2424	58726	13987
11:36	MA15686-CCV2	2465	59007	14065
11:40	MA15686-CCB2	2477	59462	14145
11:44	MP21087-LC1	2617	63326	15461
11:49	JB37361-1	2703	65275	15894
11:53	JB37361-2	2674	64309	15544
11:57	JB37361-3	2489	62107	15117
12:02	JB37361-4	2642	63490	15430
12:06	ZZZZZZ	2827	68926	16681
12:11	ZZZZZZ	2395	60016	14738
12:15	ZZZZZZ	2452	61217	14928
12:19	ZZZZZZ	2477	61983	15308
12:24	ZZZZZZ	2437	58971	14162
12:28	MA15686-CCV3	2455	59366	14188
12:32	MA15686-CCB3	2457	59394	14042
12:37	ZZZZZZ	2343	59209	14540

13.1.1
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INTERNAL STANDARD SUMMARY

Login Number: JB37361
 Account: ALNJ - Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M1.ICP Date Analyzed: 05/31/13 Methods: SW846 6010C
 Analyst: EAL Run ID: MA15686
 Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3
12:41	ZZZZZZ	2408	60487	14864
12:46	ZZZZZZ	2354	60258	14830
12:50	ZZZZZZ	2459	61192	14895
12:54	ZZZZZZ	2432	59240	14211
12:59	ZZZZZZ	2446	59216	14289
13:03	ZZZZZZ	2407	59162	14041
13:07	ZZZZZZ	2427	59848	14235
13:12	ZZZZZZ	2422	59655	14179
13:16	ZZZZZZ	2446	59349	14255
13:20	MA15686-CCV4	2437	58964	14205
13:28	MA15686-CCB4	2466	59619	14211
13:37	MP21087-PS1	2845	68614	16850
13:43	ZZZZZZ	2437	59043	14038
13:51	MA15686-CRIA2	2459	59126	14151
13:55	MA15686-CRIB1	2437	59088	14114
14:00	MP21091-B1	2348	59775	14246
14:04	MP21091-MB1	2416	58846	14034
14:08	MP21091-S1	2224	57522	14039
14:13	MP21091-S2	2223	57819	14127
14:17	MC21295-7A	2205	57982	13946
14:22	MP21091-SD1	2369	59200	14112
14:26	MA15686-CCV5	2424	58077	14063
14:31	MA15686-CCB5	2422	59188	14134
14:35	MP21091-LB1	2324	58852	14080
14:39	ZZZZZZ	2348	60405	14439
14:44	ZZZZZZ	2248	58692	14113
14:48	ZZZZZZ	2217	58318	13927
14:53	ZZZZZZ	2200	58347	13935
14:58	ZZZZZZ	2210	57777	13934
15:02	ZZZZZZ	2282	59497	14430
15:07	MA15686-CRIB2	2435	59078	14076
15:11	MA15686-ICSA2	2235	55016	13714
15:16	MA15686-ICSAB2	2229	54683	13655

13.11
13

INTERNAL STANDARD SUMMARY

Login Number: JB37361
 Account: ALNJ - Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M1.ICP Date Analyzed: 05/31/13 Methods: SW846 6010C
 Analyst: EAL Run ID: MA15686
 Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3
------	--------------------	--------	--------	--------

15:20 MA15686-CCV6 2436 58665 14280

15:24 MA15686-CCB6 2434 59327 14197

R = Reference for ISTD limits. ! = Outside limits.

LEGEND:

Istd#	Parameter	Limits
Istd#1	Yttrium (2243)	70-130 %
Istd#2	Yttrium (3600)	70-130 %
Istd#3	Yttrium (3710)	70-130 %

13.1.1
13

BLANK RESULTS SUMMARY
 Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB37361
 Account: ALNJ - Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M1.ICP Date Analyzed: 05/31/13 Methods: SW846 6010C
 QC Limits: result < RL Run ID: MA15686 Units: ug/l

Metal	RL	IDL	10:39		10:48		11:40		12:32	
			ICB1	final	CCB1	final	CCB2	final	CCB3	final
Aluminum	200	12	anr							
Antimony	6.0	1.1	anr							
Arsenic	10	1.7	anr							
Barium	500	.32	anr							
Beryllium	4.0	.1	anr							
Boron	100	1.1								
Cadmium	4.0	.25	anr							
Calcium	5000	21	anr							
Chromium	10	.48	anr							
Cobalt	50	.29	anr							
Copper	25	.93	anr							
Gold	50	1.5								
Iron	100	3.5	anr							
Lead	10	1.2	1.2	<10	0.50	<10	0.70	<10	0.70	<10
Magnesium	5000	30	anr							
Manganese	15	.16	anr							
Molybdenum	100	.31								
Nickel	40	.45	anr							
Palladium	50	2.2								
Platinum	50	6.4								
Potassium	5000	54	anr							
Selenium	25	1.7	anr							
Silicon	100	2								
Silver	5.0	.81	anr							
Sodium	5000	16	anr							
Strontium	10	.12								
Thallium	5.0	1.2	anr							
Tin	100	.87								
Titanium	50	.66								
Tungsten	100	9.3								
Vanadium	10	.82	anr							
Zinc	100	.45	anr							
Zirconium	50	.45								

(*) Outside of QC limits

13.12
13

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB37361
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M1.ICP Date Analyzed: 05/31/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15686 Units: ug/l

Time:
Sample ID:
Metal

(anr) Analyte not requested

BLANK RESULTS SUMMARY
 Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB37361
 Account: ALNJ - Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M1.ICP Date Analyzed: 05/31/13 Methods: SW846 6010C
 QC Limits: result < RL Run ID: MA15686 Units: ug/l

Metal	RL	IDL	13:28	final	14:31	final	15:24	final
			CCB4 raw		CCB5 raw		CCB6 raw	
Aluminum	200	12	anr					
Antimony	6.0	1.1	anr					
Arsenic	10	1.7	anr					
Barium	500	.32	anr					
Beryllium	4.0	.1	anr					
Boron	100	1.1						
Cadmium	4.0	.25	anr					
Calcium	5000	21	anr					
Chromium	10	.48	anr					
Cobalt	50	.29	anr					
Copper	25	.93	anr					
Gold	50	1.5						
Iron	100	3.5	anr					
Lead	10	1.2	0.40	<10	-0.40	<10	0.50	<10
Magnesium	5000	30	anr					
Manganese	15	.16	anr					
Molybdenum	100	.31						
Nickel	40	.45	anr					
Palladium	50	2.2						
Platinum	50	6.4						
Potassium	5000	54	anr					
Selenium	25	1.7	anr					
Silicon	100	2						
Silver	5.0	.81	anr					
Sodium	5000	16	anr					
Strontium	10	.12						
Thallium	5.0	1.2	anr					
Tin	100	.87						
Titanium	50	.66						
Tungsten	100	9.3						
Vanadium	10	.82	anr					
Zinc	100	.45	anr					
Zirconium	50	.45						

(*) Outside of QC limits

13.12
13

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB37361
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M1.ICP Date Analyzed: 05/31/13 Methods: SW846 6010C
QC Limits: result < RL Run ID: MA15686 Units: ug/l

Time:
Sample ID:
Metal

(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB37361
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M1.ICP Date Analyzed: 05/31/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15686 Units: ug/l

Metal	Sample ID: ICV True	10:32		CCV True	10:43		CCV True	11:36	
		ICV1	Results % Rec		CCV1	Results % Rec		CCV2	Results % Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Gold									
Iron	anr								
Lead	3000	2950	98.3	2000	1950	97.5	2000	1960	98.0
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Platinum									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								
Zirconium									

(*) Outside of QC limits

13.13
13

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB37361
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M1.ICP Date Analyzed: 05/31/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15686 Units: ug/l

Time:
Sample ID:
Metal

(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB37361
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M1.ICP Date Analyzed: 05/31/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15686 Units: ug/l

Metal	Sample ID: CCV	12:28		CCV	13:20		CCV	14:26	
		CCV3	Results		CCV4	Results		CCV5	Results
	True		% Rec	True		% Rec	True		% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Gold									
Iron	anr								
Lead	2000	1980	99.0	2000	1970	98.5	2000	1990	99.5
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Platinum									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								
Zirconium									

(*) Outside of QC limits

13.13
13

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB37361
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M1.ICP Date Analyzed: 05/31/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15686 Units: ug/l

Time:
Sample ID:
Metal

(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB37361
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M1.ICP Date Analyzed: 05/31/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15686 Units: ug/l

Time:	15:20		
Sample ID:	CCV	CCV6	
Metal	True	Results	% Rec

Aluminum	anr		
Antimony	anr		
Arsenic	anr		
Barium	anr		
Beryllium	anr		
Boron			
Cadmium	anr		
Calcium	anr		
Chromium	anr		
Cobalt	anr		
Copper	anr		
Gold			
Iron	anr		
Lead	2000	2000	100.0
Magnesium	anr		
Manganese	anr		
Molybdenum			
Nickel	anr		
Palladium			
Platinum			
Potassium	anr		
Selenium	anr		
Silicon			
Silver	anr		
Sodium	anr		
Strontium			
Thallium	anr		
Tin			
Titanium			
Tungsten			
Vanadium	anr		
Zinc	anr		
Zirconium			

(*) Outside of QC limits

13.13
13

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JB37361
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M1.ICP Date Analyzed: 05/31/13 Methods: SW846 6010C
QC Limits: 90 to 110 % Recovery Run ID: MA15686 Units: ug/l

Time:
Sample ID:
Metal

(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB37361
 Account: ALNJ - Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M1.ICP Date Analyzed: 05/31/13 Methods: SW846 6010C
 QC Limits: CRI 70-130% CRIA 70-130% Run ID: MA15686 Units: ug/l

Time:	10:53	13:51				
Sample ID:	CRI	CRIA	CRI1	% Rec	CRI2	% Rec
Metal	True	True	Results		Results	
Aluminum	200	200	anr			
Antimony	6.0	10	anr			
Arsenic	4.0	10	anr			
Barium	50	50	anr			
Beryllium	4.0	4.0	anr			
Boron	100	100				
Cadmium	4.0	4.0	anr			
Calcium	5000	5000	anr			
Chromium	10	10	anr			
Cobalt	50	50	anr			
Copper	25	25	anr			
Gold	50	50				
Iron	100	100	anr			
Lead	5.0	10	10.5	105.0	10.6	106.0
Magnesium	5000	5000	anr			
Manganese	15	15	anr			
Molybdenum	100	100				
Nickel	40	40	anr			
Palladium	50	50				
Platinum	50	50				
Potassium	5000	5000	anr			
Selenium	10	10	anr			
Silicon	100	100				
Silver	5.0	5.0	anr			
Sodium	5000	5000	anr			
Strontium	10	10				
Thallium	5.0	10	anr			
Tin	100	100				
Titanium	50	50				
Tungsten	100	100				
Vanadium	10	10	anr			
Zinc	20	20	anr			
Zirconium	50	50				

(*) Outside of QC limits

13.14
13

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB37361
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M1.ICP Date Analyzed: 05/31/13 Methods: SW846 6010C
QC Limits: CRI 70-130% CRIA 70-130% Run ID: MA15686 Units: ug/l

Time:
Sample ID:
Metal

(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB37361
 Account: ALNJ - Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M1.ICP Date Analyzed: 05/31/13 Methods: SW846 6010C
 QC Limits: 70 to 130 % Recovery Run ID: MA15686 Units: ug/l

Metal	True	Time:	13:55	15:07	
		Sample ID: CRIB	CRIB1	CRIB2	
		Results	% Rec	Results	% Rec
Aluminum	200				
Antimony	6.0				
Arsenic	10				
Barium	500				
Beryllium	4.0				
Boron	100				
Cadmium	4.0				
Calcium	5000				
Chromium	10				
Cobalt	50				
Copper	25				
Gold	50				
Iron	100				
Lead	10	10.2	102.0	9.9	99.0
Magnesium	5000				
Manganese	15				
Molybdenum	100				
Nickel	40				
Palladium	50				
Platinum	50				
Potassium	5000				
Selenium	25				
Silicon	100				
Silver	5.0				
Sodium	5000				
Strontium	10				
Thallium	5.0				
Tin	100				
Titanium	50				
Tungsten	100				
Vanadium	10				
Zinc	100				
Zirconium	50				

(*) Outside of QC limits

13.15
13

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB37361
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M1.ICP Date Analyzed: 05/31/13 Methods: SW846 6010C
QC Limits: 70 to 130 % Recovery Run ID: MA15686 Units: ug/l

Time:
Sample ID:
Metal

(anr) Analyte not requested

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JB37361
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M1.ICP Date Analyzed: 05/31/13 Methods: SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA15686 Units: ug/l

Time:			10:57		11:01		15:11		15:16	
Sample ID:	ICSA	ICSAB	ICSAL	% Rec	ICSAB1	% Rec	ICSA2	% Rec	ICSAB2	% Rec
Metal	True	True	Results		Results		Results		Results	
Aluminum	500000	500000	515000	103.0	515000	103.0	503000	100.6	518000	103.6
Antimony		2000	0.10		2070	103.5	-1.0		2100	105.0
Arsenic		2000	-2.0		2050	102.5	2.3		2100	105.0
Barium		500	0.0		513	102.6	0.0		512	102.4
Beryllium		500	0.10		475	95.0	0.0		463	92.6
Boron		1000	6.4		1010	101.0	4.4		1000	100.0
Cadmium		1000	-0.80		1020	102.0	-0.70		1010	101.0
Calcium	500000	500000	465000	93.0	461000	92.2	460000	92.0	460000	92.0
Chromium		500	0.40		505	101.0	0.90		510	102.0
Cobalt		500	-0.70		483	96.6	0.10		497	99.4
Copper		500	-0.50		528	105.6	-1.8		545	109.0
Gold		500	2.0		503	100.6	4.8		512	102.4
Iron	200000	200000	188000	94.0	188000	94.0	184000	92.0	183000	91.5
Lead		1000	2.2		916	91.6	0.10		935	93.5
Magnesium	500000	500000	492000	98.4	493000	98.6	480000	96.0	478000	95.6
Manganese		500	0.70		490	98.0	0.90		483	96.6
Molybdenum		1000	-0.20		969	96.9	-1.0		996	99.6
Nickel		1000	-1.7		889	88.9	-1.3		894	89.4
Palladium		500	-45		487	97.4	-40		487	97.4
Platinum		500	-22		479	95.8	-19		483	96.6
Potassium			-5.4		-21		95.6		49.1	
Selenium		2000	0.30		1980	99.0	-2.6		2010	100.5
Silicon		2000	41.0		2210	110.5	39.9		2220	111.0
Silver		1000	-0.10		1070	107.0	-0.80		1100	110.0
Sodium			80.6		67.1		2190		1700	
Strontium		1000	1.3		988	98.8	1.6		999	99.9
Thallium		2000	0.0		1880	94.0	-0.70		1860	93.0
Tin		1000	-0.40		982	98.2	-0.50		978	97.8
Titanium		500	9.6		522	104.4	9.7		526	105.2
Tungsten		2000	-26		1910	95.5	-29		1870	93.5
Vanadium		500	-1.0		511	102.2	-0.50		527	105.4
Zinc		1000	-0.40		914	91.4	-0.30		942	94.2
Zirconium		500	1.6		465	93.0	1.0		462	92.4

(*) Outside of QC limits

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICESA and ICSAB Standards

Login Number: JB37361
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

File ID: SB053113M1.ICP Date Analyzed: 05/31/13 Methods: SW846 6010C
QC Limits: 80 to 120 % Recovery Run ID: MA15686 Units: ug/l

Time:
Sample ID:
Metal

(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JB37361
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21087
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 05/30/13

Metal	RL	IDL	MDL	MB raw	final
Aluminum	20	1.2	3.6		
Antimony	1.0	.11	.15		
Arsenic	1.0	.17	.21		
Barium	5.0	.032	.073		
Beryllium	0.40	.01	.024		
Boron	10	.11	.11		
Cadmium	0.40	.025	.042		
Calcium	500	2.1	6.3		
Chromium	1.0	.048	.095		
Cobalt	5.0	.029	.047		
Copper	2.5	.093	.56		
Gold	5.0	.15	.43		
Iron	10	.35	.87		
Lead	1.0	.12	.17	0.090	<1.0
Magnesium	500	3	5.1		
Manganese	1.5	.016	.04		
Molybdenum	10	.031	.07		
Nickel	4.0	.045	.044		
Palladium	5.0	.22	.64		
Platinum	5.0	.64	1.5		
Potassium	500	5.4	8.6		
Selenium	1.0	.17	.35		
Silicon	10	.2	3.3		
Silver	0.50	.081	.13		
Sodium	500	1.6	3.3		
Strontium	1.0	.012	.03		
Thallium	1.0	.12	.13		
Tin	10	.087	.14		
Titanium	5.0	.066	.14		
Tungsten	10	.93	.94		
Vanadium	1.0	.082	.13		
Zinc	2.0	.045	.16		
Zirconium	5.0	.045	.088		

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13

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JB37361
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21087
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

Associated samples MP21087: JB37361-1, JB37361-2, JB37361-3, JB37361-4

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(anr) Analyte not requested

13.2.1

13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB37361
 Account: ALNJ - Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21087
 Matrix Type: SOLID

Methods: SW846 6010C
 Units: mg/kg

Prep Date: 05/30/13

Metal	MC21207-1 Original MS	Spikelot MPICP	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Boron				
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt	anr			
Copper	anr			
Gold				
Iron	anr			
Lead	18.8	95.0	97.5	78.2 75-125
Magnesium	anr			
Manganese	anr			
Molybdenum				
Nickel	anr			
Palladium				
Platinum				
Potassium	anr			
Selenium	anr			
Silicon				
Silver	anr			
Sodium	anr			
Strontium				
Thallium	anr			
Tin				
Titanium				
Tungsten				
Vanadium	anr			
Zinc	anr			
Zirconium				

13.22
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB37361
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21087
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

Associated samples MP21087: JB37361-1, JB37361-2, JB37361-3, JB37361-4

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB37361
 Account: ALNJ - Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21087
 Matrix Type: SOLID

Methods: SW846 6010C
 Units: mg/kg

Prep Date: 05/30/13

Metal	MC21207-1 Original MSD	SpikeLot MPICP	% Rec	MSD RPD	QC Limit
Aluminum	anr				
Antimony	anr				
Arsenic	anr				
Barium	anr				
Beryllium	anr				
Boron					
Cadmium	anr				
Calcium	anr				
Chromium	anr				
Cobalt	anr				
Copper	anr				
Gold					
Iron	anr				
Lead	18.8	95.3	97.5	78.5	0.3 20
Magnesium	anr				
Manganese	anr				
Molybdenum					
Nickel	anr				
Palladium					
Platinum					
Potassium	anr				
Selenium	anr				
Silicon					
Silver	anr				
Sodium	anr				
Strontium					
Thallium	anr				
Tin					
Titanium					
Tungsten					
Vanadium	anr				
Zinc	anr				
Zirconium					

13.22
13

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB37361
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21087
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

Associated samples MP21087: JB37361-1, JB37361-2, JB37361-3, JB37361-4

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

13.2.22
13

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JB37361
 Account: ALNJ - Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21087
 Matrix Type: SOLID

Methods: SW846 6010C
 Units: mg/kg

Prep Date: 05/30/13 05/30/13

Metal	BSP Result	Spikelot MPICP	% Rec	QC Limits	BSD Result	Spikelot MPICP	% Rec	BSD RPD	QC Limit
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Gold									
Iron	anr								
Lead	94.9	100	94.9	80-120	95.9	100	95.9	1.0	20
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Platinum									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								
Zirconium									

13.23
13

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JB37361
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21087
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

Associated samples MP21087: JB37361-1, JB37361-2, JB37361-3, JB37361-4

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JB37361
 Account: ALNJ - Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21087
 Matrix Type: SOLID

Methods: SW846 6010C
 Units: mg/kg

Prep Date: 05/30/13

Metal	LCS Result	Spikelot MPLCS78	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Boron				
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt	anr			
Copper	anr			
Gold				
Iron	anr			
Lead	87.9	91.7	95.9	82-118
Magnesium	anr			
Manganese	anr			
Molybdenum				
Nickel	anr			
Palladium				
Platinum				
Potassium	anr			
Selenium	anr			
Silicon				
Silver	anr			
Sodium	anr			
Strontium				
Thallium	anr			
Tin				
Titanium				
Tungsten				
Vanadium	anr			
Zinc	anr			
Zirconium				

13.23
13

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JB37361
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21087
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

Associated samples MP21087: JB37361-1, JB37361-2, JB37361-3, JB37361-4

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JB37361
 Account: ALNJ - Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21087
 Matrix Type: SOLID

Methods: SW846 6010C
 Units: ug/l

Prep Date: 05/30/13

Metal	MC21207-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Boron				
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt	anr			
Copper	anr			
Gold				
Iron	anr			
Lead	194	230	18.8 (a)	0-10
Magnesium	anr			
Manganese	anr			
Molybdenum				
Nickel	anr			
Palladium				
Platinum				
Potassium	anr			
Selenium	anr			
Silicon				
Silver	anr			
Sodium	anr			
Strontium				
Thallium	anr			
Tin				
Titanium				
Tungsten				
Vanadium	anr			
Zinc	anr			
Zirconium				

13.24
13

SERIAL DILUTION RESULTS SUMMARY

Login Number: JB37361
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21087
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date:

Metal

Associated samples MP21087: JB37361-1, JB37361-2, JB37361-3, JB37361-4

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested
(a) Serial dilution indicates possible matrix interference.

POST DIGESTATE SPIKE SUMMARY

Login Number: JB37361
 Account: ALNJ - Accutest New Jersey
 Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21087
 Matrix Type: SOLID

Methods: SW846 6010C
 Units: ug/l

Prep Date:

05/30/13

Metal	Sample ml	Final ml	MC21207-1 Raw	PS Corr.**	PS ug/l	Spike ml	Spike ug/ml	Spike ug/l	% Rec	QC Limits
Aluminum										
Antimony										
Arsenic										
Barium										
Beryllium										
Boron										
Cadmium										
Calcium										
Chromium										
Cobalt										
Copper										
Gold										
Iron										
Lead										
Magnesium										
Manganese										
Molybdenum										
Nickel										
Palladium										
Platinum										
Potassium										
Selenium										
Silicon										
Silver										
Sodium										
Strontium										
Thallium										
Tin										
Titanium										
Tungsten										
Vanadium										
Zinc										
Zirconium										

13.25
13

POST DIGESTATE SPIKE SUMMARY

Login Number: JB37361
Account: ALNJ - Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

QC Batch ID: MP21087
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date:

Metal

Associated samples MP21087: JB37361-1, JB37361-2, JB37361-3, JB37361-4

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(**) Corr. sample result = Raw * (sample volume / final volume)
(anr) Analyte not requested

General Chemistry

QC Data Summaries

(Accutest Labs of New England, Inc.)

Includes the following where applicable:

- Percent Solids Raw Data Summary

Percent Solids Raw Data Summary

Job Number: JB37361
Account: ALNJ Accutest New Jersey
Project: AQTPAW: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: JB37361-1 **Analyzed:** 30-MAY-13 by HS **Method:** SM21 2540 B MOD.
ClientID: AOI5_MW-457_0-1_051713

Wet Weight (Total)	34.582	g
Tare Weight	20.803	g
Dry Weight (Total)	33.454	g
Solids, Percent	91.8	%

Sample: JB37361-2 **Analyzed:** 30-MAY-13 by HS **Method:** SM21 2540 B MOD.
ClientID: AOI5_MW-457_2-3_051713

Wet Weight (Total)	37.509	g
Tare Weight	26.982	g
Dry Weight (Total)	35.639	g
Solids, Percent	82.2	%

Sample: JB37361-3 **Analyzed:** 30-MAY-13 by HS **Method:** SM21 2540 B MOD.
ClientID: AOI5_MW-454_0-2_51713

Wet Weight (Total)	32.128	g
Tare Weight	18.866	g
Dry Weight (Total)	30.828	g
Solids, Percent	90.2	%

Sample: JB37361-4 **Analyzed:** 30-MAY-13 by HS **Method:** SM21 2540 B MOD.
ClientID: AOI5_MW-454_8-10_051713

Wet Weight (Total)	36.747	g
Tare Weight	27.973	g
Dry Weight (Total)	35.262	g
Solids, Percent	83.1	%

14.1
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General Chemistry

QC Data Summaries

Includes the following where applicable:

- Percent Solids Raw Data Summary

Percent Solids Raw Data Summary

Job Number: JB37361
Account: AQTPAW Aquaterra Technologies, Inc.
Project: Sun-Marcus Hook Refinery, Philadelphia, PA

Sample: JB37361-1 **Analyzed:** 30-MAY-13 by AMA **Method:** SM21 2540 B MOD.
ClientID: AOI5_MW-457_0-1_051713

Wet Weight (Total)	34.582	g
Tare Weight	20.803	g
Dry Weight (Total)	33.454	g
Solids, Percent	91.8	%

Sample: JB37361-2 **Analyzed:** 30-MAY-13 by AMA **Method:** SM21 2540 B MOD.
ClientID: AOI5_MW-457_2-3_051713

Wet Weight (Total)	37.509	g
Tare Weight	26.982	g
Dry Weight (Total)	35.639	g
Solids, Percent	82.2	%

Sample: JB37361-3 **Analyzed:** 30-MAY-13 by AMA **Method:** SM21 2540 B MOD.
ClientID: AOI5_MW-454_0-2_51713

Wet Weight (Total)	32.128	g
Tare Weight	18.866	g
Dry Weight (Total)	30.828	g
Solids, Percent	90.2	%

Sample: JB37361-4 **Analyzed:** 30-MAY-13 by AMA **Method:** SM21 2540 B MOD.
ClientID: AOI5_MW-454_8-10_051713

Wet Weight (Total)	36.747	g
Tare Weight	27.973	g
Dry Weight (Total)	35.262	g
Solids, Percent	83.1	%

15.1
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